PAIN MANAGEMENT
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Aberg, A. C., B. Lindmark, and H. Lithell. "Development and reliability of the General Motor Function Assessment Scale (GMF)--a performance-based measure of function-related dependence, pain and insecurity." *Disability & Rehabilitation.* 25, no. 9(2003): 462-72 UI 12745941.

PURPOSE: To develop a scale for assessment of three components-dependence, pain and insecurity - related to motor functions of importance for activities of daily living among older rehabilitation patients and to establish its clinical practicality and reliability. METHOD: A General Motor Function Assessment Scale (GMF) with the above aims was constructed. Clinical practicality was explored by questionnaires to 14 physiotherapists. Inter-rater and test-retest reliability was tested on patients in three different forms of geriatric rehabilitation (n=20-25) and analysed by percentage agreement (PA) and a non-parametric statistical method, which provide measures of the random disagreement separately from the systematic part of the disagreement. RESULTS: In the clinical test the GMF was found to be time efficient and clinically adequate. Analysis of reliability showed overall high values of PA (PA> or =70) and of the rank-order agreement coefficient (r(a)>0.82), and low degrees of systematic disagreement. CONCLUSIONS: GMF was found to be a clinically useful assessment scale in geriatric rehabilitation. The statistical analyses indicted a high degree of reliability. Comparison of these results with reliability of comparable rating scales is difficult on account of the statistical methods used in other studies, which commonly do not take into account the non-metric properties of the data.

Abernethy, A. P., G. P. Samsa, and D. B. Matchar. "A clinical decision and economic analysis model of cancer pain management." *American Journal of Managed Care.* 9, no. 10(2003): 651-64 UI 14572175.

OBJECTIVE: To design a model that educates clinical decision makers and healthcare professionals about the burden of cancer pain in their individual populations, and that assists them in weighing the effectiveness and cost of different cancer pain management strategies. STUDY DESIGN: Tailored cost-effectiveness analysis using an evidence-based decision analytic model. METHODS: The spreadsheet-based model compares 3 strategies: (1) guideline-based care (GBC), (2) oncology-based care (OBC), and (3) usual care (UC). The model calculates the likelihood of cancer pain in a healthcare population, how effectively that pain is managed, and the average monthly cost of medications plus procedural interventions. Model inputs were derived from published US population demographics, cancer registry data, high-quality studies of cancer pain management, standard reimbursement schedules, and expert opinion. The model permits users to tailor population demographics, strategy effectiveness, and resource

costs. RESULTS: Of 100 000 patients with typical US demographics, approximately 508 (0.51%) will have cancer and 205 (0.20%) will suffer from cancer pain. After 1 month, the percentage of cancer pain patients with effective pain management and the cost of each strategy were estimated as follows: (1) GBC, 80% and dollar 579; (2) OBC, 55% and dollar 466; and (3) UC, 30% and dollar 315. Compared with OBC, GBC had an incremental cost-effectiveness ratio of dollar 452 per additional patient relieved of cancer pain. Compared with UC, OBC had an incremental cost-effectiveness ratio of dollar 601 per additional patient relieved of cancer pain. CONCLUSION: Guideline-based cancer pain management leads to improved pain control with modest increases in resource use.

Ackerman, S. J., et al. "Patient-reported utilization patterns of fentanyl transdermal system and oxycodone hydrochloride controlled-release among patients with chronic nonmalignant pain.[see comment]." *Journal of Managed Care Pharmacy.* 9, no. 3(2003): 223-31 UI 14613465.

BACKGROUND: Although use of long-acting opioid analgesics has increased for chronic nonmalignant pain management, little is known about patient-reported utilization patterns. OBJECTIVE: To assess patient-reported utilization patterns of fentanyl transdermal system and oxycodone hydrochloride (HCl) controlled-release among patients with chronic nonmalignant pain and to compare these patterns to standard dose administration guidelines recommended in the manufacturers. prescribing information (PI). METHODS: Cross-sectional, observational, multicenter study of English-speaking patients who were seeking chronic nonmalignant pain management from 6 outpatient pain clinics. The inclusion criteria for the study were (1) diagnosis of chronic nonmalignant pain, (2) prescription for and current use of either transdermal fentanyl or oxycodone HCl controlled-release, and (3) duration of use for either transdermal fentanyl or oxycodone HCl controlled-release of at least 6 weeks. Patients completed either an oxycodone HCl controlled-release or transdermal fentanyl utilization questionnaire. A conversion table was used to standardize opioid analgesic doses from transdermal fentanyl or oxycodone HCl controlled-release to daily oral morphine equivalents. The principal outcome measures were the average interval between oxycodone HCl controlled-release administrations, the number of days the current transdermal fentanyl patch would be worn, and the percentage of oxycodone HCl controlled-release and transdermal fentanyl patients whose administration frequency exceeded the standard recommendation in the manufacturer.s PI (every 12 hours for oxycodone HCl controlled-release or every 72 hours for transdermal fentanyl). Other outcome measures included the number of oxycodone HCl controlled-release tablets per administration, the daily dose of long-acting opioid, the duration of adequate pain relief, and the difference in daily oral morphine equivalents between transdermal fentanyl and oxycodone HCl controlled-release patients, after adjusting in a multivariate regression model for demographic and clinical characteristics. RESULTS: A total of 690 patients were enrolled in this study; 437 (63.4%) received oxycodone HCl controlled-release and 253 (36.6%) received transdermal fentanyl. Oxycodone HCl controlled-release patients reported taking a median of 1 tablet 3 times per day or a median of 3 tablets per day. A mean of 1.6 tablets per administration and 4.6 tablets per day were taken. The average interval between administrations of oxycodone HCl controlled-release was 7.8 hours, and the median daily dose was 80.0 mg (mean 155.6 mg). Among oxycodone HCl controlled-release patients, 17.5% had an average interval between administrations of 12 or more hours, whereas 1.9% reported the duration of pain relief as 12 or more hours. Transdermal fentanyl patients reported wearing the patch, on average, for 2.5 days (median 2.5),and 41.2% reported wearing the patch for at least 3 days, whereas 14.1% reported the duration of pain relief as at least 3 days. The median daily dosage strength of transdermal fentanyl was 75.0 mcg/hour. In the multivariate regression analysis,

oxycodone HCl controlled-release patients had, on average, roughly 22 mg additional oral morphine equivalents per day relative to transdermal fentanyl patients (not statistically significant); the probability that oxycodone HCl controlled-release patients had higher oral morphine equivalents was 82.6%, which suggests a trend toward higher oral morphine equivalents per day in the oxycodone HCl controlled-release group. CONCLUSION: Transdermal fentanyl and oxycodone HCl controlled-release both appear to be used by patients in a manner that is inconsistent with the standard recommendation in the manufacturers' PI;however, the difference between patient-reported utilization and the PI recommendation is more pronounced with oxycodone HCl controlled-release.

Adkoli, S. "Symptomatic hyponatremia in patients on oxcarbazepine therapy for the treatment of neuropathic pain: two case reports." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 47-51 UI 14640340.

Oxcarbazepine is an FDA approved anticonvulsant medication that has also been used clinically as a treatment for chronic neuropathic pain. Hyponatremia is occasionally seen with the older anticonvulsant carbamazepine, and oxcarbazepine is a derivative of that older drug. Two cases of hyponatremia associated with oxcarbazepine are reported and suggestions for monitoring for and managing this effect are provided.

Akinci, S. B., et al. "Analgesic effect of intra-articular tramadol compared to morphine after arthroscopic knee surgery." *Canadian Journal of Anaesthesia.* 50, no. 4(2003): 423-4 UI 12670826.

Alimi, D., et al. "Analgesic effect of auricular acupuncture for cancer pain: a randomized, blinded, controlled trial." *Journal of Clinical Oncology.* 21, no. 22(2003): 4120-6 UI 14615440.

PURPOSE: During the last 30 years, auricular acupuncture has been used as complementary treatment of cancer pain when analgesic drugs do not suffice. The purpose of this study is to examine the efficacy of auricular acupuncture in decreasing pain intensity in cancer patients. PATIENTS AND METHODS: Ninety patients were randomly divided in three groups; one group received two courses of auricular acupuncture at points where an electrodermal signal had been detected, and two placebo groups received auricular acupuncture at points with no electrodermal signal (placebo points) and one with auricular seeds fixed at placebo points. Patients had to be in pain, attaining a visual analog score (VAS) of 30 mm or more after having received analgesic treatment adapted to both intensity and type of pain, for at least 1 month of therapy. Treatment efficacy was based on the absolute decrease in pain intensity measured 2 months after randomization using the VAS. RESULTS: The main outcome was pain assessed at 2 months, with the assessment at 1 month carried over to 2 months for the eight patients who interrupted treatment after 1 month. For three patients, no data were available because they withdrew from the study during the first month. Pain intensity decreased by 36% at 2 months from baseline in the group receiving acupuncture; there was little change for patients receiving placebo (2%). The difference between groups was statistically significant ($P < .0001$). CONCLUSION: The observed reduction in pain intensity measured on the VAS represents a clear benefit from auricular acupuncture for these cancer patients who are in pain, despite stable analgesic treatment.

Andersen, O. K., et al. "Foot-sole reflex receptive fields for human withdrawal reflexes in symmetrical standing position." *Experimental Brain Research.* 152, no. 4(2003): 434-43 UI 12904932.

Human withdrawal-reflex receptive fields were assessed in 10 healthy subjects during standing with even support on both legs. Two electrical-stimulus intensities

(1.2 and 2.2 times the pain threshold, PTh) were used. The painful stimuli were delivered in random order to 12 positions distributed over the foot sole. Tibialis anterior (TA), soleus (SO), vastus lateralis (VL), semitendinosus (ST), and iliopsoas (IL) reflexes were recorded. Further, the vertical force was recorded and the center or pressure (CoP) was assessed in the frontal and sagittal planes on both legs. Reflexes were observed at both intensities with the strongest reflexes at the high intensity. Around the ankle joint, SO reflexes dominated, which is in contrast to previous observations for subjects sitting. An unloading of the limb was found on the stimulated leg associated with a simultaneous loading of the contralateral leg. The shift in load was most pronounced for stimulation of the heel. The flexors ST and IL also had strong reflexes with reflex patterns correlated to the pattern of unloading. The shift in vertical force was accomplished by a move of the CoP in the anterior direction on the stimulated limb (contraction of SO), which simultaneously caused a small movement of the CoP in the lateral direction. In the present standing conditions, the ankle extensor played a dominant role in the withdrawal pattern in contrast to previous studies during sitting, relaxed conditions.

Anonymous. "State-by-state report card on care for the dying finds mediocre care nationwide." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 111-5 UI 14649395.

In November 2002, Last Acts issued a state-by-state report on care of dying patient sin the United States. The report highlights 'Islands of Excellence' despite a grim national picture. The opinion poll conducted by Last Acts shows that Americans are dissatisfied and seeking to reduce the financial burden, physical pain and emotional stress associated with the end of life.

Anonymous. "Summaries for patients. Does chest pain relief with nitroglycerin mean coronary artery disease?[comment]." *Annals of Internal Medicine.* 139, no. 12(2003): I30 UI 14678936.

Aoki, K. R. "Evidence for antinociceptive activity of botulinum toxin type A in pain management." *Headache.* 43, no. Suppl 1(2003): S9-15 UI 12887389.

The neurotoxin, botulinum toxin type A, has been used successfully, in some patients, as an analgesic for myofascial pain syndromes, migraine, and other headache types. The toxin inhibits the release of the neurotransmitter, acetylcholine, at the neuromuscular junction thereby inhibiting striated muscle contractions. In the majority of pain syndromes where botulinum toxin type A is effective, inhibiting muscle spasms is an important component of its activity. Even so, the reduction of pain often occurs before the decrease in muscle contractions suggesting that botulinum toxin type A has a more complex mechanism of action than initially hypothesized. Current data points to an antinociceptive effect of botulinum toxin type A that is separate from its neuromuscular activity. The common biochemical mechanism, however, remains the same between botulinum toxin type A's effect on the motor nerve or the sensory nerve: enzymatic blockade of neurotransmitter release. The antinociceptive effect of the toxin was reported to block substance P release using in vitro culture systems. The current investigation evaluated the in vivo mechanism of action for the antinociceptive action of botulinum toxin type A. In these studies, botulinum toxin type A was found to block the release of glutamate. Furthermore, Fos, a product of the immediate early gene, c-fos, expressed with neuronal stimuli was prevented upon peripheral exposure to the toxin. These findings suggest that botulinum toxin type A blocks peripheral sensitization and, indirectly, reduces central sensitization. The recent hypothesis that migraine involves both peripheral and central sensitization may help explain how botulinum toxin type A inhibits migraine pain by acting on these two pathways. Further research is needed to determine whether the antinociceptive mechanism mediated by botulinum toxin

type A affects the neuronal signaling pathways that are activated during migraine. [References: 18]

Aronow, W. S. "Treatment of unstable angina pectoris/non-ST-segment elevation myocardial infarction in elderly patients." *Journals of Gerontology Series A-Biological Sciences & Medical Sciences.* 58, no. 10(2003): M927-33 UI 14570861.

Elderly patients with unstable angina pectoris/non-ST-segment elevation myocardial infarction should be hospitalized. Precipitating factors should be identified and corrected. Electrocardiogram monitoring is important. Aspirin should be given as soon as possible and continued indefinitely. Clopidogrel should given for up to 9 months in patients in whom an early noninterventional approach is planned or in whom a percutaneous coronary intervention (PCI) is planned. Clopidogrel should be withheld for 5-7 days in patients in whom elective coronary artery bypass graft surgery (CABGS) is planned. A platelet glycoprotein IIb/IIIa inhibitor should also be given in addition to aspirin, clopidogrel, and heparin in patients in whom cardiac catheterization and PCI are planned. Patients whose symptoms are not fully relieved with three 0.4-mg sublingual nitroglycerin tablets or spray taken 5 minutes apart and the initiation of an intravenous beta blocker should be treated with continuous intravenous nitroglycerin. Beta blockers and angiotensin-converting enzyme (ACE) inhibitors should be given and continued indefinitely. The benefit of long-acting nondihydropyridine calcium channel blockers is limited to symptom control. Intra-aortic balloon pump counterpulsation should be used for severe ischemia that is continuing or occurs frequently despite intensive medical therapy or for hemodynamic instability. Statins should be used if the serum low-density lipoprotein (LDL) cholesterol is >or=100 mg/dl and continued indefinitely. Enoxaparin is preferable to intravenous unfractionated heparin in the absence of renal failure and unless CABGS is planned within 24 hours. Thrombolysis is not beneficial. High-risk patients should have an early invasive strategy with CABGS or PCI performed depending on the coronary artery anatomy, left ventricular function, presence or absence of diabetes, and findings on noninvasive testing. Following hospital discharge, patients should have intensive risk factor modification with cessation of smoking, maintenance of blood pressure below 135/85 mmHg, indefinite use of statins if needed to maintain the serum LDL cholesterol <100 mg/dl, intensive control of diabetes, maintenance of optimal weight, and daily exercise. Patients should be treated indefinitely with aspirin, beta blockers, and ACE inhibitors and with clopidogrel for up to 9 months. Nitrates should be given for ischemic symptoms. Hormonal therapy should not be given to postmenopausal women. [References: 37]

Ashburn, M. A., et al. "The pharmacokinetics of transdermal fentanyl delivered with and without controlled heat." *Journal of Pain.* 4, no. 6(2003): 291-7 UI 14622685.

Preliminary reports have demonstrated that the application of local heat to the transdermal fentanyl patch significantly increased systemic delivery of fentanyl. The objective of this study was to further evaluate the pharmacokinetic effect of local heat administration on fentanyl drug delivery through the transdermal fentanyl patch delivery system in volunteers. In addition, the study was intended to document the effect of heat on steady-state transdermal fentanyl delivery. This was an open, 3-period, crossover study that evaluated the pharmacokinetics and safety of 25 microg/h transdermal fentanyl administered with and without local heat. During Sessions A and B, subjects received transdermal fentanyl for a 30-hour period. During Session A, heat was applied for 1 hour at the 24-hour time point during the 30-hour period. During Session B, heat was applied for the first 4 hours and then again for 1 hour at the 24-hour time point during the 30-hour period. The order of Sessions A and B was randomized, and a minimum of 2 weeks separated the sessions. Five of the 10 subjects returned to participate in Session C. During Session C, subjects received transdermal fentanyl 25 microg/h for 18 hours. Heat was

applied during the first 4 hours of administration and then again for 15-minute periods at the 12- and 16-hour time points. Arterial blood samples for determination of serum fentanyl concentration were collected. Maximum concentration (C(max)), time to maximum concentration (t(max)), and area under the curve (AUC) were determined for each treatment period. Sedation, vital signs, oxygen saturation, and adverse events were recorded. During a period of 36 hours, there were no significant differences in C(max), AUC, or T(max) between transdermal fentanyl delivery with no heat and heat. However, significant differences were seen during the first 4 hours, with C(max) and AUC values almost 3 times higher for the heated administrations than for the administrations without heat. With heat, the mean C(max) was 0.63 ng/mL compared with a C(max) of 0.24 ng/mL without heat (P =.007). With early heat, the mean AUC was 1.22 ng/mL. h compared with 0.42 ng/mL. h without heat (P =.003). There was no statistically significant difference between the median times to achieve peak values (T(max)) during the first 4 hours. The addition of heat at 24 hours resulted in rapid increases in serum fentanyl concentrations for both groups and higher serum fentanyl concentrations for the administration that did not receive heat previously. Applying heat for 15 minutes at the 12-hour and 16-hour time points produced a rapid but short duration increase in serum fentanyl concentrations. The results suggest controlled heat might be used to significantly shorten the time needed to reach clinically important fentanyl concentrations. Controlled heat might be useful to produce rapid increases in serum concentrations for the rapid treatment of breakthrough pain.

Ashby, M., and K. Jackson. "Opioids in palliative care: emerging clinical trends." *Internal Medicine Journal.* 33, no. 7(2003): 265-6 UI 12823669.

Audette, J. F., and R. A. Blinder. "Acupuncture in the management of myofascial pain and headache." *Current Pain & Headache Reports.* 7, no. 5(2003): 395-401 UI 12946294.

Acupuncture encompasses a host of healing techniques that have been practiced for more than 2000 years. Many different techniques and styles are in use in the West. The scientific study of acupuncture regarding its effectiveness has proven to be problematic and definitive studies are few. This is partly because of the difficulty in studying a dynamic, patient-centered system whose practice paradigms often are artificially limited by the application of a reductionist methodology, which is dictated by the standards of scientific enquiry. However, acupuncture, unlike many indigent medical practices in the world, has withstood the test of time in China and in the West, with many practitioners and patients reporting real benefits for the conditions of headache and myofascial pain when treated by acupuncture. This review provides a brief overview of acupuncture and what is known of its effectiveness in treating headache and myofascial pain. [References: 52]

Bajaj, P., et al. "Prophylactic tolperisone for post-exercise muscle soreness causes reduced isometric force--a double-blind randomized crossover control study." *European Journal of Pain: Ejp.* 7, no. 5(2003): 407-18 UI 12935792.

The role of tolperisone hydrochloride, a centrally acting muscle relaxant in relieving painful muscle spasm is recently being discussed. The present study hypothesizes that the prophylactic use of tolperisone hydrochloride may effectively relieve post-exercise muscle soreness, based on the spasm theory of exercise pain. Twenty male volunteers, aged 25.2 +/- 0.82 years (mean +/- SEM) participated in 10 sessions in which they received oral treatment with placebo or the centrally acting muscle relaxant tolperisone hydrochloride (150 mg) three times daily for 8 days, in randomized crossover double-blind design. Time course assessments were made for pressure pain threshold, Likert's pain score (0-5), pain areas, range of abduction, isometric force, and electromyography (EMG) root mean square (RMS) during

maximum voluntary isometric force on day 1 and 6, immediately after an eccentric exercise of first dorsal interosseous muscle, and 24 and 48 h after the exercise. Treatment with placebo or tolperisone hydrochloride was initiated immediately after the assessments on the first day baseline assessments. On the sixth day baseline investigations were repeated and then the subjects performed six bouts of standardized intense eccentric exercise of first dorsal interosseous muscle for provocation of post-exercise muscle soreness (PEMS). Perceived intensity of warmth, tiredness, soreness and pain during the exercise bouts were recorded on a 10 cm visual analogue pain scale. VAS scores and pressure pain thresholds did not differ between tolperisone and placebo treatment. All VAS scores increased during the exercise bouts 2, 3, 4, 5 and 6 as compared to bout 1. Increased pain scores and pain areas were reported immediately after, 24 and 48 h after exercise. Pressure pain thresholds were reduced at 24 and 48 h after the exercise in the exercised hand. Range of abduction of the index finger was reduced immediately after the exercise and was still reduced at 24 h as compared to the non-exercised hand. The EMG RMS amplitude was also reduced immediately after the exercise, but was increased at 24 and 48 h. Isometric force was reduced immediately after the exercise as compared to days 1, 6, and the 24 and 48 h post-exercise assessments with a greater reduction following the tolperisone hydrochloride treatment and the reduction was more in tolperisone group as compared to the placebo group. The results suggest, that the prophylactic intake of tolperisone hydrochloride provides no relief to pain in course of post-exercise muscle soreness but results in reduction in isometric force.

Bales, D. M. "The Kansas Living Initiatives for End-of-Life Care." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 71-82 UI 14649390.

The Kansas Living Initiatives for End-of-Life Care (LIFE) project was formed in 1999 by over 70 Kansas organizations, agencies and associations to further the cause of dignified, comfortable and peaceful end of life in terminally ill patients. LIFE developed a module on end-of-life care that was added to the Kansas year 2000 Behavioral Risk Factor Surveillance system, convened meetings of partners including health professional licensing boards, reviewed state laws and regulations, and published a joint policy statement of the Kansas Boards of Healing Arts, Nursing and Pharmacy on the use of controlled substances for pain management. Activities of Project LIFE and outcomes are described.

Barbuto, J. P. "Patient-reported utilization patterns of narcotic drugs.[comment]." *Journal of Managed Care Pharmacy.* 9, no. 4(2003): 374-5 UI 14613462.

Birch, N. C. "The provision of services for spinal disorders.[comment]." *Journal of Bone & Joint Surgery - British Volume.* 85, no. 8(2003): 1209 UI 14653613.

Biswas, B. K., and P. K. Bithal. "Preincision 0.25% bupivacaine scalp infiltration and postcraniotomy pain: a randomized double-blind, placebo-controlled study." *Journal of Neurosurgical Anesthesiology.* 15, no. 3(2003): 234-9 UI 12826971.

This prospective, double-blind, randomized, and placebo-controlled trial was performed to evaluate the effect of preincisional scalp infiltration with 0.25% bupivacaine on the postoperative pain perception and analgesic requirement of patients undergoing elective supratentorial craniotomy. Twenty patients (bupivacaine group) received scalp infiltration with 25 mL of 0.25% bupivacaine followed by intravenous 5 mL of saline as placebo 5 minutes before incision, and another 21 patients (fentanyl group) received scalp infiltration with a similar volume of 0.9% saline solution followed by 2 microg/kg of intravenous fentanyl 5 minutes before incision. Following standard anesthesia technique, basal, preincisional, and postincisional hemodynamic data were recorded. Postoperative pain was assessed at

1, 6, 12, 24, and 48 hours by using a 10-cm visual analog scale. Diclofenac sodium was used as rescue analgesic in the postoperative period. Results showed rescue analgesic was required only during the first 12 hours. In each group the same number of patients needed rescue analgesia, but bupivacaine delayed this requirement 105 (30-720; median [range]) minutes compared with 60 (15-720; median [range]) minutes for the fentanyl group (P = 0.13). But there was no difference in the amount of analgesic consumed at different time intervals. Six of 20 patients in the bupivacaine group required rescue analgesic at the end of 1 hour compared with 9 of 21 fentanyl patients (P = 0.61). At 6 hours, the fraction of patients who required rescue analgesia were 7 of 20 and 11 of 21, respectively (P = 0.44). In conclusion, bupivacaine preincision scalp infiltration did not have any significant effect on postcraniotomy pain and analgesic requirement. However, bupivacaine may delay the requirement of the first analgesic dose.

Breckenridge, J., and J. D. Clark. "Patient characteristics associated with opioid versus nonsteroidal anti-inflammatory drug management of chronic low back pain." *Journal of Pain.* 4, no. 6(2003): 344-50 UI 14622692.

Chronic low back pain is both prevalent and costly in many industrialized nations. Although many modalities exist for the treatment of this condition, few are as commonly used or as controversial as the use of opioids. Many sets of guidelines exist for the prescription of opioids for chronic nonmalignant pain, but little evidence addresses what factors actually contribute to the decision to initiate and maintain patients on these drugs. In these studies we first identified 2 groups of 100 patients each, all with chronic low back pain. Group N patients received long-term nonsteroidal anti-inflammatory drug therapy for the treatment of their pain, whereas Group O received opioids long-term. The identities of the specific analgesics were tabulated. A list of variables including patient characteristics, healthcare utilization factors, and psychologic characteristics were extracted from their medical records. Regression analysis was performed, which resulted in the identification of 4 variables of age, depression, personality disorder, and history of substance abuse as being closely linked to the use of opioids for the treatment of back pain in preference to nonsteroidal anti-inflammatory drugs alone. By using the derived regression equation, 79% of patients could be correctly classified into Group O or Group N. Pain intensity did not predict opioid use. We present alternative explanations for these observations.

Breivik, H. "Appropriate and responsible use of opioids in chronic non-cancer pain.[comment]." *European Journal of Pain: Ejp.* 7, no. 5(2003): 379-80 UI 12935788.

Bright, E., et al. "Patient-controlled sedation for colonoscopy: a randomized trial comparing patient-controlled administration of propofol and alfentanil with physician-administered midazolam and pethidine." *Endoscopy.* 35, no. 8(2003): 683-7 UI 12929065.

BACKGROUND AND STUDY AIMS: Patient-controlled sedation (PCS) using propofol and alfentanil provides effective sedation for colonoscopy, with the advantage of a shorter recovery time in comparison with diazepam and pethidine. However, most endoscopy units in the United Kingdom are currently using midazolam (a shorter-acting benzodiazepine) as a sedative agent. This study compares the efficacy of sedation and recovery times between PCS and a combination of midazolam and pethidine. PATIENTS AND METHODS: Sixty-seven patients undergoing colonoscopy were randomly assigned prospectively to receive sedation with either PCS, using propofol and alfentanil, or a bolus of midazolam and pethidine. Sedation and pain scores were recorded during the procedure by one specialist nurse. Patients' recollection of pain was recorded after the procedure.

Recovery was assessed using number connection tests. The impact on subsequent activities and the level of amnesia, as well as overall satisfaction, were established by telephone call after 24 h. RESULTS: The sedation method had no impact on the success, difficulty, or duration of the colonoscopy. PCS could be set up by the specialist nurse without affecting the time between cases. Patients in the PCS group recovered significantly faster (median 5 min vs 35 min; P < 0.0001) and left the department more quickly (median 40 min vs 75 min; P < 0.0001). Patients in the PCS group had significantly higher pain scores and significantly more recall than those in the midazolam and pethidine group. All patients were satisfied with the sedation they received. CONCLUSIONS: PCS provides an acceptable alternative to sedation with midazolam and pethidine with the advantage of significantly faster recovery times, which are of relevance in the outpatient setting.

Brosnan, R., and L. K. Newby. "Acute coronary syndromes in patients with diabetes mellitus: diagnosis, prognosis, and current management strategies." *Current Cardiology Reports.* 5, no. 4(2003): 296-302 UI 12801449.

The incidence of type-2 diabetes mellitus is rising rapidly both in the United States and worldwide. Because of its presence in so many patients with acute coronary syndromes, it is becoming essential for cardiologists to understand the basic pathophysiology of insulin resistance, its role in the development of type-2 diabetes, and its association with accelerated atherosclerosis. Because diabetes imparts a worse prognosis among patients with acute coronary syndromes, these patients warrant aggressive antiplatelet and antithrombotic therapy, as well as a more invasive management strategy. [References: 28]

Campana, W. M., and R. R. Myers. "Exogenous erythropoietin protects against dorsal root ganglion apoptosis and pain following peripheral nerve injury." *European Journal of Neuroscience.* 18, no. 6(2003): 1497-506 UI 14511329.

Erythropoietin (Epo) has been shown to have potent anti-apoptotic activity in central nervous system neurons in animal models of ischaemic injury. Recently, Epo and its receptor (EpoR) have been identified in the peripheral nervous system [Campana & Myers (2001), FASEB J., 15, 1804-1806]. Herein, we demonstrate that in painful neuropathy caused by L5 spinal nerve crush (SNC), therapy with recombinant human Epo (rhEpo) reduced dorsal root ganglion (DRG) apoptosis and pain behaviours. Quantification of both DRG neurons and satellite cells revealed that vehicle-treated, crush-injured DRGs had 35.5 +/- 8.3% apoptotic neurons and 23.5 +/- 2.36% satellite cells compared with 7.5 +/- 6.3% apoptotic neurons and 6.4 +/- 3.94% satellite cells in rhEpo-treated, crush-injured DRGs (P < 0.05). While rhEpo-treated animals were not initially protected from mechanical allodynia associated with L5 SNC, rhEpo did significantly improve recovery rates compared to vehicle-treated animals (P < 0.01). Systemic rhEpo therapy increased JAK2 phosphorylation, a key anti-apoptotic signalling molecule for Epo-induced neuroprotection, in DRGs after crush. Dual immunofluorescence demonstrated Epo-induced JAK2-p was associated with both neuronal and glial cells. JAK2-p was associated with NF200-positive large neurons and with smaller neurons. This population of small neurons did not colocalize with IB4, a marker of nonpeptidergic, glial derived growth factor-responsive neurons. The findings link anti-apoptosis activities of Epo/EpoR/JAK2 in DRG neurons capable of inducing protracted pain states with reductions in pain behaviours, and therefore support a role for Epo therapy in the treatment of neuropathic pain.

Chauvin, M. "State of the art of pain treatment following ambulatory surgery." *European Journal of Anaesthesiology.* 20, no. Suppl 28(2003): 3-6 UI 12785455.

BACKGROUND AND OBJECTIVE: The growth of ambulatory surgical procedures is limited by severe postoperative pain. After particularly painful operative procedures,

moderate-to-severe pain is estimated to occur in approximately 30% of patients. Inadequate analgesia may delay or prevent discharge, or result in readmission. Severe postoperative pain also causes extreme discomfort and can prevent sleep, thus contributing to postoperative fatigue. Moreover, postoperative pain limits mobility at home and delays the return to normal activities. The development of effective analgesia for postoperative pain is therefore a priority of modern medicine. RESULTS: The pain experienced during the first days spent at home is related to the magnitude of pain experienced at the hospital. Aggressive analgesic treatment at the hospital is therefore of key importance. This includes pre- and intraoperative administration of analgesics to reduce the pain in the immediate postoperative period, and the use of multimodal, balanced analgesia throughout recovery. Clinical studies have shown that patients who receive both pre- and postoperative analgesia experience greater pain relief than those who receive postoperative analgesia alone. Multimodal analgesia, including the use of anaesthetics, is increasingly important in attempts to avoid the prescription of single strong opioids postoperatively. The use of a non-steroidal anti-inflammatory drug (NSAID) plus an anaesthetic perioperatively has also been shown to be more effective than anaesthetic alone. CONCLUSIONS: Postoperative pain is the most commonly reported complication of ambulatory surgery. Although the number of analgesic techniques seems more limited in outpatient than in inpatient surgery, the combination of analgesic regimens in a multimodal approach may improve postoperative analgesia and functional outcome after ambulatory surgery. The combination of acetaminophen plus tramadol is a useful formulation to prescribe if acetaminophen or NSAIDs alone are ineffective. [References: 17]

Chavis, S. W., and L. H. Duncan. "Pain management--continuum of care for surgical patients." *AORN Journal.* 78, no. 3(2003): 382-6, 389-99; quiz 400-1, 403-4 UI 14507120.

A pain management process improvement team was created to develop a unified and consistent way to address pain management for surgical patients. Team members evaluated patient satisfaction ratings, patient and family member education, use of specific pain scales, patient comfort function goals, staff member education, and use of physician standing orders and protocols. Team members were proactive in their efforts to improve pain management outcomes for surgical patients and to improve patient satisfaction. They also integrated protocols to comply with pain management standards established by the Joint Commission on Accreditation of Healthcare Organizations. [References: 9]

Chelly, J. E., et al. "Anesthesia and postoperative analgesia: outcomes following orthopedic surgery." *Orthopedics.* 26, no. 8 Suppl(2003): s865-71 UI 12934742.

The demand for increased efficiency and decreased hospital stay has magnified the role of anesthesia and acute postoperative pain management in orthopedics. Orthopedic anesthesia and acute postoperative pain management, which are subspecialties of anesthesiology, are increasingly recognized for their positive effect on the length of hospital stay, functional recovery, and patient satisfaction. Recently, there has been a resurgence in the use of continuous nerve block techniques for postoperative pain management. These techniques have been shown to be effective and safe in controlling postoperative pain, both at rest and during physical therapy, even in anticoagulated patients. The use of peripheral nerve blocks for anesthesia has been associated with earlier discharge when compared with general anesthesia and neuraxial blocks in patients undergoing ambulatory orthopedic surgery. Regional techniques are usually part of a multimodal strategy that includes both pharmacological and nonpharmacological approaches to pain management. [References: 47]

Chou, R., E. Clark, and M. Helfand. "Comparative efficacy and safety of long-acting oral opioids for chronic non-cancer pain: a systematic review." *Journal of Pain & Symptom Management.* 26, no. 5(2003): 1026-48 UI 14585554.

Opioids have been endorsed as appropriate treatment for refractory chronic non-cancer pain when used according to published guidelines. They are widely used for this indication. However, there appear to be gaps in our understanding of the efficacy and safety of individual long-acting opioids compared to each other or as a class compared to short-acting opioids. This systematic review summarizes and assesses the evidence for the comparative efficacy and safety of long-acting opioids in the management of chronic non-cancer pain. Randomized trials (for comparative efficacy and adverse events) and observational studies (for adverse events only) that included non-parenteral long-acting opioids were sought using electronic databases, handsearching reference lists, and soliciting pharmaceutical company submissions. Searches were performed through October 2002. The validity of each included study was assessed using a data abstraction form and predefined criteria. An overall grade was allocated for the body of evidence for each key question. A total of 16 randomized trials (comparative efficacy and adverse events), enrolling 1427 patients, and 8 observational studies (adverse events) of 1190 patients were included in this review. No randomized trial was rated good quality; observational studies were generally of poorer quality than the trials. There was insufficient evidence to prove that different long-acting opioids are associated with different efficacy or safety profiles. There was also insufficient evidence to determine whether long-acting opioids as a class are more effective or safer than short-acting opioids. A subgroup of three studies on long-acting versus short-acting oxycodone was more homogeneous and provided fair evidence that these formulations are equally effective for pain control. [References: 42]

Clark, A. J., and M. E. Lynch. "Opioid therapy and chronic non-cancer pain/Le traitement aux opioides et la douleur non cancereuse.[comment]." *Canadian Journal of Anaesthesia.* 50, no. 1(2003): 1-4 UI 12514141.

Clark, A. J., and M. E. Lynch. "Therapy of chronic non-malignant pain with opioids.[comment]." *Canadian Journal of Anaesthesia.* 50, no. 1(2003): 92; author reply 92 UI 12514159.

Currie, S. R., et al. "Outcome from integrated pain management treatment for recovering substance abusers." *Journal of Pain.* 4, no. 2(2003): 91-100 UI 14622720.

There is little information on the efficacy of pain management for substance abusers with noncancerous chronic pain conditions. The present study describes an outcome evaluation of a pain management group adapted to the needs of patients diagnosed with concurrent chronic pain and substance abuse disorders. A heterogeneous group of 44 patients (66% opioid dependent; 61% musculoskeletal pain) attended a 10-week outpatient group based within a multidisciplinary substance abuse treatment program. Measures of addiction severity, pain, use of self-management techniques, emotional distress, medication use, and functional status were obtained at pretreatment, post-treatment, 3-month, and 12-month follow-ups. Outcome data were analyzed on the group and individual level, the latter using the reliable change index. Intention-to-treat analyses showed significant improvements in pain, emotional distress, medication reduction, and coping style. Half of the patients showed a statistically reliable improvement on at least 1 outcome measure, and half were opioid free at the 12-month follow-up assessment. These results suggest that persons with concurrent chronic pain and substance use disorders are responsive to an integrated treatment model of pain management and relapse prevention.

Damush, T. M., et al. "The long-term effects of a self-management program for inner-city primary care patients with acute low back pain." *Archives of Internal Medicine.* 163, no. 21(2003): 2632-8 UI 14638564.

BACKGROUND: We evaluated the effect of a self-management program for low-income primary care patients with acute low back pain (ALBP) from inner-city neighborhood health centers. METHODS: We conducted a randomized controlled trial of a self-management program compared with usual care at university-affiliated neighborhood health centers and an emergency department of an inner-city public teaching hospital. We enrolled 211 patients who visited a physician for ALBP (<90 days' duration). The self-management program consisted of 3 group sessions and telephone follow-up that focused on understanding back pain, increasing physical activity, and dealing with fears and frustrations. RESULTS: At baseline, 4 months, and 12 months, blinded interviewers assessed back pain physical function (Roland Disability Questionnaire), health status (Arthritis Impact Measurement Scales), self-efficacy, and time spent in physical activity. Compared with patients receiving usual care, intervention patients reported significantly better scores on the Roland Disability Questionnaire (P =.009), mental functioning (P =.009), self-efficacy to manage ALBP (P =.03), time spent in physical activity (P =.047), and reduced fears of movement/reinjury (P =.005) after 12 months. CONCLUSION: A self-management program can improve and maintain functional status, mental functioning, and self-efficacy to manage future symptoms for 1 year among primary care patients with ALBP living in the urban, inner city.

Danzi, G. B., et al. "Preliminary experience with the Tsunami coronary stent: immediate and six-month clinical and angiographic results." *International Journal of Cardiovascular Interventions.* 5, no. 3(2003): 161-5 UI 12959734.

The Tsunami is a new, balloon-expandable, stainless steel, tubular coronary stent whose design is based on a number of radial, diamond-shaped cells joined by double connectors. The aim of this two-centre, prospective, nonrandomized study was to examine the procedural, in-hospital, and long-term clinical and angiographic outcomes of patients undergoing angioplasty with the Tsunami stent. Sixty-one consecutive unselected patients were treated by means of the implantation of 74 Tsunami stents in 72 coronary lesions. Most of the patients (64%) had unstable angina or acute myocardial infarction. The baseline lesion morphology was complex in 76% of cases, and the mean lesion length was 14 +/- 6 mm. The procedural success rate was 98%. Mean percentage diameter of the stenosis decreased after the intervention from 79 +/- 12% to 10 +/- 6%. The in-hospital major adverse cardiac event rate was 3.3%. During the six-month follow-up, there was one cardiac death and nine subjects (14.5%) underwent target vessel revascularization. The six-month event-free survival rate was 80%. The angiographic restenosis rate was 17%: a focal or limited pattern (class I or II) was found in 43% of cases, whereas the remaining 57% had a proliferative morphology (class III or IV). In conclusion, this study indicates the good clinical and angiographic performance of the Tsunami coronary stent system in consecutive unselected patients.

De Andres, J., and S. Chaves. "Coccygodynia: a proposal for an algorithm for treatment." *Journal of Pain.* 4, no. 5(2003): 257-66 UI 14622695.

Coccygodynia (coccydynia, coccygalgia) or coccygeal pain is a well-known but rarely studied painful syndrome affecting the coccyx region. Its etiology is not well understood. Symptoms include development of pericoccygeal soft tissues, pelvic floor muscle spasms, referred pain from lumbar pathology, arachnoiditis of the lower sacral nerve roots, local post-traumatic lesions, and somatization. In spite of advances in the treatment of other pain conditions, coccygodynia remains in a position for which therapeutic options are not clearly designed. On the basis of an

anatomic review, proposed pathogenesis of coccygodynia, and the number of treatment approaches that have been proposed, we propose an algorithm for therapeutic decision making in the treatment of this syndrome. [References: 73]

Desmeules, J., et al. "Clinical pharmacology and rationale of analgesic combinations." *European Journal of Anaesthesiology.* 20, no. Suppl 28(2003): 7-11 UI 12785456.

BACKGROUND AND OBJECTIVE: Oral fixed drug combination analgesics have potential advantages over monotherapy, but these can only be attained through careful design. RESULTS: The main reasons for developing combination analgesics are to gain efficacy and to reduce toxicity. Analgesic combinations interact pharmacokinetically, or pharmacodynamically, or both, in positive or negative terms. The t(max) value for both enantiomers of tramadol occur two hours following administration, and that for the active, (+)-M1 metabolite occurs after three hours. Thus, pairing tramadol with acetaminophen, a rapid-onset analgesic, represents a pharmacokinetically rational combination. Analgesic combinations should satisfy two important pharmacodynamic criteria: the components of the combination should display additive or synergistic analgesia; and this interaction should allow lower doses of each substance to be used in combination, resulting in an improved safety profile. Clinical studies of the pharmacodynamic between oral tramadol and acetaminophen in third molar extraction and cold pressor models have provided evidence that this combination provides better efficacy than either individual component of the combination. CONCLUSIONS: In summary, combination analgesics can play a valuable role in pain management. However, dubious combinations (directed against the same targets or with unwanted interactions) and 'old fashioned' fixed-dose multiple analgesic agent combinations should be avoided. Fixed-dose combination analgesics are of value only when they have been developed according to rational pharmacokinetic and pharmacodynamic criteria, and when claims for their benefits have been supported by evidence-based data and well-designed clinical studies. [References: 16]

Devys, J. M., et al. "Intrathecal + PCA morphine improves analgesia during the first 24 hr after major abdominal surgery compared to PCA alone." *Canadian Journal of Anaesthesia.* 50, no. 4(2003): 355-61 UI 12670812.

PURPOSE: To compare, over a 48-hr follow-up period, the analgesia and side-effects of patient controlled iv analgesia (PCA) with morphine alone vs combined intrathecal and PCA morphine (IT+PCA) in patients undergoing major abdominal surgery. METHODS: Sixty adult patients undergoing abdominal surgery for cancer were randomly allocated to receive preoperative IT (0.3 or 0.4 mg) plus postoperative PCA morphine or postoperative PCA morphine alone. Postoperative analgesia was tested at rest and while coughing on a visual analogue pain scale and morphine consumption was recorded. Patients' satisfaction, arterial oxygen saturation, respiratory rate, episodes of nausea, vomiting and pruritus were also noted. RESULTS: Analgesia at rest and while coughing was significantly better in the IT+PCA morphine group (rest: $P = 0.01$; coughing: $P = 0.005$) on the first postoperative day only. IT+PCA morphine constantly provided adequate analgesia during this period. Morphine consumption was lower in the IT+PCA morphine group during this period also (IT+PCA: 9 (17) vs PCA: 40 (26); mg of morphine, mean (SD), $P = 0.0001$). No difference was found in pain relief and morphine consumption between the groups on the second postoperative day. Nausea and vomiting were more frequent with IT+PCA morphine on the first postoperative day. No respiratory depression occurred in either group. Satisfaction was high in both groups. CONCLUSIONS: IT+PCA morphine improves patient comfort constantly during the first postoperative day after major abdominal surgery. However, after the first postoperative day, IT+PCA morphine provides no additional benefit.

Dorje, P., et al. "Bilateral cervical nerve infiltration supplements epidural analgesia for sternotomy pain after lung volume reduction surgery." *Journal of Cardiothoracic & Vascular Anesthesia.* 17, no. 3(2003): 359-60 UI 12827588.

Ehrlich, G. E. "Pain is real; fibromyalgia isn't.[comment]." *Journal of Rheumatology.* 30, no. 8(2003): 1666-7 UI 12913918.

Ekre, O., et al. "Temporary cessation of spinal cord stimulation in angina pectoris-effects on symptoms and evaluation of long-term effect determinants." *Coronary Artery Disease.* 14, no. 4(2003): 323-7 UI 12826932.

BACKGROUND: Spinal cord stimulation (SCS) has been used since 1985 for patients with refractory angina pectoris. Spinal cord stimulation has anti-ischaemic effects and reduces angina effectively. After long-term treatment, temporary cessation of stimulation may occur due to SCS battery depletion or electrode fracture. The aim of the present study was to assess anginal symptoms and functional status during SCS dysfunction and after its restitution. DESIGN: A prospective follow-up study of angina patients treated with SCS, where temporary SCS dysfunction had occurred. METHODS: Thirty-two patients treated with SCS for angina pectoris over 65 months, on average (range 14-181 months), were included. Complete stimulator dysfunction had occurred due to battery depletion (n=25) or electrode fracture (n=7). The number of anginal attacks and the amount of short-acting nitrates consumed were assessed during dysfunction and after restitution of SCS function. The Seattle Angina Questionnaire (SAQ) was used to assess functional status. RESULTS: The anginal frequency increased during dysfunction (18.9 per week) and decreased after restitution of SCS function (7.6 episodes per week; $p<0.001$). The consumption of short-acting nitrates decreased as well (21.7 versus 7.1 tablets per week; $p<0.01$). The functional status according to the SAQ also improved with regard to anginal stability, anginal frequency, and disease perception. No evidence of tolerance development to SCS was found. CONCLUSION: This study indicates that SCS relieves angina effectively also after long-term treatment, without development of tolerance. The findings suggest that mechanisms other than placebo and spontaneous variation of symptoms are responsible for the improvement in angina during SCS.

Elfving, B., A. Dedering, and G. Nemeth. "Lumbar muscle fatigue and recovery in patients with long-term low-back trouble--electromyography and health-related factors." *Clinical Biomechanics.* 18, no. 7(2003): 619-30 UI 12880709.

OBJECTIVE: The aim was to explore the validity and reliability of EMG for assessing lumbar muscle fatigue. DESIGN: Patients with long-term low-back trouble (n=57) were compared to a healthy reference group (n=55). Back muscle fatigue and recovery were studied in relation to health-related factors. BACKGROUND: EMG spectral variables are important tools in the assessment of patients with low-back trouble. The influence of disability on these variables needs further investigation. METHODS: EMG from the lower back muscles was recorded during a 45 s trunk extension at 80% of maximal voluntary contraction torque and during recovery. Disability was studied using questionnaires. RESULTS: The reliability was high for maximal voluntary contraction torque and EMG initial median frequency, lower for the median frequency slope, and insufficient for median frequency recovery half-time. The patients had lower maximal voluntary contraction torque, higher initial median frequency at L5 level, flatter slope, and longer recovery half-time than the healthy subjects did. However, for subjects with significantly negative slope, indicating fatigue, there was no significant difference in slope between patients and healthy subjects, while, for subjects without such fatigue, patients showed significantly flatter slopes at L5. The sensitivity/specificity of the test was 86%/78%.

The most significant variables selected with logistic regression were maximal voluntary contraction torque and initial median frequency at L5. Patients without significantly negative slopes during contraction and/or not exponential-like EMG recovery scored worse on several items concerning disability and self-efficacy. CONCLUSIONS: EMG spectral variables in combination with torque might be used for classification. For patients with long-term low-back trouble, the ability to fatigue the lumbar muscles sufficiently to obtain a significantly negative slope during an 80% maximal voluntary contraction may be a sign of better functioning. RELEVANCE: The ability to fatigue the back muscles during a test requiring a high force output might be achieved with back muscle training focused on increasing strength and self-efficacy.

Erolcay, H., and L. Yuceyar. "Intravenous patient-controlled analgesia after thoracotomy: a comparison of morphine with tramadol." *European Journal of Anaesthesiology.* 20, no. 2(2003): 141-6 UI 12622499.

BACKGROUND AND OBJECTIVE: This study examined the quality of analgesia together with the side-effects produced by tramadol compared with morphine using intravenous patient-controlled analgesia during the first 24 h after thoracotomy. METHODS: Forty-four patients scheduled for thoracotomy were included in the study. Morphine 0.3 mg kg(-1) was given interpleurally 20 min before a standard general anaesthetic. In the postanaesthetic care unit, the patients were randomly allocated to one of two groups to self-administer tramadol or morphine using a patient-controlled analgesia device throughout a 24 h period. The patient-controlled analgesia device was programmed to deliver tramadol 20 mg as an intravenous bolus or morphine 2 mg with a lockout time of 10 min. RESULTS: Mean cumulative morphine and tramadol consumption were 48.13 +/- 30.23 and 493.5 +/- 191.5 mg, respectively. There was no difference in the quality of analgesia between groups. Five (26.3%) patients in the tramadol group and seven (33%) in the morphine group had nausea, and three of the latter patients vomited. The incidence rate of vomiting with tramadol was 5.2%. All vital signs were within safe ranges. Sedation was less in the tramadol group, but not statistically significant. CONCLUSIONS: In this clinical setting, which includes interpleural morphine pre-emptively, postoperative analgesia provided by tramadol was similar to that of morphine at rest and during deep inspiration. Side-effects were slight and comparable between the patients receiving morphine and tramadol.

Eshkevari, L. "Acupuncture and pain: a review of the literature." *AANA Journal.* 71, no. 5(2003): 361-70 UI 14625973.

In the United States today, as many as one third of the population suffers from chronic pain conditions. These syndromes cost an estimated $80 billion and are a major source of burden to the healthcare system as well as to the suffering patients. According to a study by Harvard Medical School in 1997, visits to alternative medicine providers had reached 629 million, mostly for these pain conditions. The action of acupuncture as an analgesic, although widely accepted, remains somewhat of an enigma. In reviewing the literature it became evident that many investigators have had conflicting data; however, with regard to acupuncture in pain management, quite a few results were found to be positive. Many now believe that acupuncture should be considered a valuable asset in the specialty of pain, and that it can be of value in comprehensive pain clinics as well as physical therapy practice. Acupuncture is certainly not a cure-all; however, researchers and experienced clinicians both attest to its benefits. This article is a review of the literature with regard to acupuncture as a modality for pain management. [References: 100]

Exner, H. J., J. Peters, and M. Eikermann. "Epidural analgesia at end of life: facing empirical contraindications." *Anesthesia & Analgesia.* 97, no. 6(2003): 1740-2 UI 14633552.

In a patient with unbearable cancer pain at the end of life, long-lasting analgesia without impairment of consciousness could only be achieved with an epidural infusion of local anesthetics combined with opioids and clonidine. Despite leptomeningeal infection during prolonged treatment, epidural analgesia at the lumbar level provided analgesia using very large doses of local anesthetics combined with clonidine and morphine. Thus, terminal sedation was avoided, allowing the patient's end-of-life planning of an "aware" death surrounded by her family. It may be useful to reconsider institutional pain management standards when unbearable pain occurs in patients with limited life expectancy. IMPLICATIONS: We report a patient with severe visceral and neurogenic pain from metastatic carcinoma of the colon resistant to multimodal oral analgesic therapy. Although there were empirical contraindications, epidural analgesia was successful, allowing the patient's end-of-life planning of an "aware" death surrounded by the family.

Feld, J. M., et al. "Non-opioid analgesia improves pain relief and decreases sedation after gastric bypass surgery." *Canadian Journal of Anaesthesia.* 50, no. 4(2003): 336-41 UI 12670809.

PURPOSE: Several non-opioid drugs have been shown to provide analgesia during and after surgery. We compared sevoflurane anesthesia with fentanyl analgesia to sevoflurane and non-opioid drug treatment for gastric bypass surgery and recovery. METHODS: Thirty obese patients (body mass index > 50 kg.m(-2)) undergoing gastric bypass were randomized to receive sevoflurane anesthesia with either fentanyl or a non-opioid regimen including ketorolac, clonidine, lidocaine, ketamine, magnesium sulfate, and methylprednisolone. Morphine use by patient-controlled analgesia (PCA) pump and pain score measured by visual analogue scale were determined in the postanesthesia care unit (PACU) and for the first 16 hr after surgery. Sedation was evaluated in the PACU. Investigators assessing patient outcomes were blinded to the study group. RESULTS: Fentanyl treated patients were more sedated in the PACU compared to the non-opioid group. Non-opioid treated patients required 5.2 +/- 2.6 mg.hr(-1) morphine by PCA during their stay in the PACU while patients anesthetized with fentanyl used 7.8 +/- 3.3 mg.hr(-1) ($P < 0.05$). Fentanyl and non-opioid treated patients showed no difference in pain score one or 16 hr after surgery. CONCLUSION: Our results show that non-opioid analgesia produced pain relief and less sedation during recovery from gastric bypass surgery compared to fentanyl.

Fernandes, C., and H. Bird. "Prescribing NSAIDs in practice." *Practitioner.* 247, no. 1651(2003): 796-9 UI 14584357.

Fine, P. G. "COX-2 selective NSAIDs and advancing legal issues in palliative care." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 53-7 UI 14640341.

The role of the cycloxygenase-2 selective NSAIDs in palliative care has not been studied, per se, but the improved adverse gastrointestinal and platelet effect profiles of these newer agents over nonselective NSAIDs offers potential advantages in patients with advanced disease. These issues are discussed. The need for greater emphasis on scientific and evidence-based approaches to palliative care is great and generally recognized in the clinical and scientific communities. Recent legal opinions about aggressive care of patients approaching end of life has increased this need. The clinical and ethical implications of these decisions are discussed.

Fishbain, D. A., et al. "Do the proposed cervicogenic headache diagnostic criteria demonstrate specificity in terms of separating cervicogenic headache from migraine?" *Current Pain & Headache Reports.* 7, no. 5(2003): 387-94 UI 12946293.

Diagnostic criteria for cervicogenic headache (CH) have been proposed. These criteria are controversial in that they appear to overlap or include characteristics that usually are attributed to migraine headache (MH). Whether these criteria are specific enough to separate CH patients from MH patients remains to be controversial. The literature on this issue is reviewed. In addition, the authors report the results of a study attempting to build a model of variables typically associated with CH or MH, which would identify patients with CH. A significant model could not be built that did not include MH symptoms. As such, it has been concluded that it is unlikely that the criteria for CH will have the specificity required to separate CH patients from MH patients.

Frampton, M. "Experience assessment and management of pain in people with dementia." *Age & Ageing.* 32, no. 3(2003): 248-51 UI 12720608.

Pain is an inherently subjective experience that is difficult to prove. In a cognitively impaired older person whose verbal fluency is declining, both the experience and expression of pain are altered. Assessment poses many difficulties. Consequently the older person with dementia and pain may be under-treated and poorly managed. This review addresses each of these issues and makes recommendations for more effective care in the future. The search strategy for this review was carried out using Medline (1990-2002), Embase (1989-2001) and ClinPSYCH (1990-2001) databases. References cited within these sources were also reviewed. Searches were limited to English language studies. The quality of relevant studies retrieved was assessed and information from relevant papers synthesised using narrative summary. [References: 33]

Frei, A., et al. "A one year health economic model comparing transdermal fentanyl with sustained-release morphine in the treatment of chronic noncancer pain." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 5-26 UI 14649386.

A Markov model was constructed to simulate the resource use and health outcomes of one year of treatment comparing the fentanyl transdermal therapeutic system (fentanyl-TTS) with oral sustained-release (SR) morphine in outpatients with noncancer pain in Denmark. Effectiveness was assessed in terms of days of good pain control and days on initial treatment. Costs included those of baseline pain management, including breakthrough pain; co-medication costs; and control of adverse events. Fentanyl-TTS was more effective than SR-morphine in achieving good pain control (99 vs. 64 days, respectively) and the incremental cost-effectiveness of fentanyl-TTS was US dollars 10.26 per extra day of good pain control. Patients treated with fentanyl-TTS remained considerably longer on initial treatment compared with those treated with SR-morphine (166 days vs. 117 days, respectively). The results of this study suggest that fentanyl-TTS is a competitive therapeutic and economic choice for the treatment of chronic noncancer pain.

Friedman, R., et al. "Severe intraoperative hypertension and opioid-resistant postoperative pain in a methadone-treated patient." *Journal of Pain.* 4, no. 5(2003): 289-90 UI 14622699.

Patients who are treated with methadone present challenges for the anesthesiologist. We report the untoward effects of rapid preoperative methadone tapering on the operative and perioperative course of a patient who required emergency surgery. The patient's exaggerated stress response to surgery and severe intractable postoperative pain might have resulted from unrecognized methadone withdrawal. Continuation of methadone treatment in patients who have surgery may

prevent exaggerated intraoperative hemodynamic responses to surgical stimuli and unnecessary postoperative suffering.

Gallagher, R. M. "Measuring emotions in pain: challenges and advances.[comment]." *Pain Medicine.* 4, no. 3(2003): 211-2 UI 12974818.

Gehi, A. K., et al. "Relation of self-reported angina pectoris to inducible myocardial ischemia in patients with known coronary artery disease: the Heart and Soul Study." *American Journal of Cardiology.* 92, no. 6(2003): 705-7 UI 12972112.

To determine whether self-reported angina pectoris is associated with objective evidence of myocardial ischemia, we assessed angina symptoms, using the Seattle Angina Questionnaire, and measured ischemia using stress echocardiography in 933 patients with known coronary artery disease. We observed no association between self-reported angina pectoris and objective evidence of inducible ischemia.

Gentelle-Bonnassies, S., et al. "Comparison of the responsiveness of symptomatic outcome measures in knee osteoarthritis." *Arthritis Care & Research.* 13, no. 5(2000): 280-5 UI 14635296.

OBJECTIVE: A number of international scientific societies have recommended a core set of domains to be systematically assessed in clinical research studies on osteoarthritis (OA), i.e., pain, function, and patient's overall assessment. This open, longitudinal, observational study compares the responsiveness of different symptomatic variables evaluating these 3 domains in knee OA. METHODS: Patients were individuals with painful knee OA. The collected data were Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) pain subscale (0-100) and WOMAC function subscale (0-100), Lequesne's index (0-100), pain after physical activities (visual analog scale [VAS] 100 mm), and patient's global assessment (VAS 100 mm). The procedure used was knee joint lovage. Time of collection was before and 1, 3, and 6 months after the lavage. Analysis was by comparison of the standardized response mean (mean of the changes/SD of the changes) in an intent-to-treat strategy after 1, 3, and 6 months using the jackknife method. RESULTS: Improvement in all dimensions of WOMAC subscale scores and VAS scores was observed at month 1. Lequesne's index was not responsive to change. The standardized response mean was moderate, ranging from 0.00 to 0.40. Comparison of the estimates of the standardized response means using the jackknife method showed a statistically significant difference between Lequesne's index and the WOMAC subscale for function, but not between VAS pain and the WOMAC subscale for pain. CONCLUSION: Most of the evaluated variables have a moderate responsiveness. In knee OA, the WOMAC function scale seems to be more sensitive than Lequesne's index for detecting changes after symptomatic therapy.

George, J., et al. "Safety of nitrate withdrawal in angina-free and hemodynamically stable patients with coronary artery disease." *Chest.* 124, no. 5(2003): 1652-7 UI 14605030.

STUDY OBJECTIVES: To assess the consequences of nitrate withdrawal in angina-free and hemodynamically stable coronary patients. DESIGN: Prospective, open, intervention study. SETTING: Cardiology outpatient clinic of a university-affiliated municipal hospital. PATIENTS: Angina-free patients who were hemodynamically stable for at least 3 months before study onset were enrolled. They were all regularly receiving nitrates for symptom control. Those with significant reasons to avoid stopping nitrates, such as heart failure (ejection fraction <35%) or high BP (> 160 mm Hg systolic and/or > 100 mm Hg diastolic), and noncompliant patients were excluded. INTERVENTIONS: After providing informed consent and undergoing an exercise test (whenever possible), the participants were randomized to abruptly discontinue (study group) or continue (control group) nitrate treatment. Follow-up

continued for at least 3 months after study entry. MEASUREMENTS AND RESULTS: Eighty patients were randomized to the study group and 40 patients to the control group (mean age [+/- 1 SD], 65.5 +/- 11 years and 66.1 +/- 10.9 years, respectively; p = not significant). The first month, eight study patients (10%) had a recurrence of anginal symptoms, compared with one control subject (2.5%) [p = not significant]. All eight patients responded promptly and favorably to the resumption of nitrate administration. CONCLUSIONS: Nitrate administration can be safely discontinued in angina-free and hemodynamically stable coronary patients who receive this medication on a regular basis. If relapse of anginal symptoms occurs, it will be within 1 month following nitrate withdrawal, and will resolve satisfactorily with reinstatement of treatment.

Gerkin, D. G. "Thanatophobia revisited." *Tennessee Medicine.* 96, no. 10(2003): 442-3 UI 14574719.

Gibbons, R. J. "Nitroglycerin: should we still ask?[comment]." *Annals of Internal Medicine.* 139, no. 12(2003): 1036-7 UI 14678924.

Giller, C. A. "The neurosurgical treatment of pain." *Archives of Neurology.* 60, no. 11(2003): 1537-40 UI 14623724.

Gilron, I., and J. M. Bailey. "Trends in opioid use for chronic neuropathic pain: a survey of patients pursuing enrollment in clinical trials.[see comment]." *Canadian Journal of Anaesthesia.* 50, no. 1(2003): 42-7 UI 12514149.

PURPOSE: Clinical trials suggest that opioids relieve neuropathic pain and decrease pain-related disability. We conducted a pilot study of current prescribing trends and patients' attitudes towards opioids for neuropathic pain. METHODS: A patient questionnaire was completed by individuals pursuing enrollment in neuropathic pain clinical trials at our facility. RESULTS: Of 154 patients with diabetic neuropathy (55.2%), postherpetic neuralgia (29.9%), idiopathic peripheral neuropathy (9.7%) and other neuropathies (5.2%), 73.4% complained of inadequate pain control, the mean pain duration was 4.7 (SD = 4.4) yr and the mean pain intensity (0-10) was 7.7 (SD = 2.3). In this group, 40.9% had never tried opioids and 24.7% had never tried any opioids, tricyclic antidepressants or anticonvulsants. Only 9.7% were receiving long-acting opioids or "around the clock" dosing whereas 25.3% were receiving opioids on an "as needed" basis. Opioids combined with tricyclic antidepressants and/or anticonvulsants were used in 11.0%. Fear of addiction and adverse effects were expressed by 31.8% and 46.8% respectively. CONCLUSION: These data suggest that barriers to opioid therapy for neuropathic pain include patients', and possibly physicians', fears of addiction and adverse effects, which are exaggerated in light of current evidence. The merits of continuous treatment with sustained-release opioids, "as needed" dosing with short-acting preparations, or combining opioids with other agents are discussed. Continued research and communication between health professionals, law enforcement officials and legislators is vital in order to facilitate appropriate opioid use which has a minimal negative impact on the public yet optimally benefits individuals who suffer from disabling neuropathic pain.

Gordon, D. A. "Fibromyalgia--real or imagined?[comment]." *Journal of Rheumatology.* 30, no. 8(2003): 1665 UI 12913917.

Gorski, E. D., and K. C. Willis. "Report of three case studies with olanzapine for chronic pain." *Journal of Pain.* 4, no. 3(2003): 166-8 UI 14622714.

Olanzapine, an atypical antipsychotic, has broad spectrum psychotropic effects, affecting dopamine receptors 1, 2, and 3, 5-hydroxytryptamine 2A, 5-

hydroxytryptamine 2C, muscarinic, alpha-adrenergic, alpha-adrenergic, and histamine H-sites. This unique pharmacologic property allows clinicians to use the agent as an adjunct for pain control, particularly when the intensity of the pain is exacerbated by dysregulation of neurotransmitters. Three case studies are presented from a suburban family practice setting in which olanzapine has been successfully used to regulate pain perception in adults with chronic pain.

Green, C. R., et al. "The unequal burden of pain: confronting racial and ethnic disparities in pain.[see comment]." *Pain Medicine.* 4, no. 3(2003): 277-94 UI 12974827.

CONTEXT: Pain has significant socioeconomic, health, and quality-of-life implications. Racial- and ethnic-based differences in the pain care experience have been described. Racial and ethnic minorities tend to be undertreated for pain when compared with non-Hispanic Whites. OBJECTIVES: To provide health care providers, researchers, health care policy analysts, government officials, patients, and the general public with pertinent evidence regarding differences in pain perception, assessment, and treatment for racial and ethnic minorities. Evidence is provided for racial- and ethnic-based differences in pain care across different types of pain (i.e., experimental pain, acute postoperative pain, cancer pain, chronic non-malignant pain) and settings (i.e., emergency department). Pertinent literature on patient, health care provider, and health care system factors that contribute to racial and ethnic disparities in pain treatment are provided. EVIDENCE: A selective literature review was performed by experts in pain. The experts developed abstracts with relevant citations on racial and ethnic disparities within their specific areas of expertise. Scientific evidence was given precedence over anecdotal experience. The abstracts were compiled for this manuscript. The draft manuscript was made available to the experts for comment and review prior to submission for publication. CONCLUSIONS: Consistent with the Institute of Medicine's report on health care disparities, racial and ethnic disparities in pain perception, assessment, and treatment were found in all settings (i.e., postoperative, emergency room) and across all types of pain (i.e., acute, cancer, chronic nonmalignant, and experimental). The literature suggests that the sources of pain disparities among racial and ethnic minorities are complex, involving patient (e.g., patient/health care provider communication, attitudes), health care provider (e.g., decision making), and health care system (e.g., access to pain medication) factors. There is a need for improved training for health care providers and educational interventions for patients. A comprehensive pain research agenda is necessary to address pain disparities among racial and ethnic minorities. [References: 182]

Green, C. R., J. R. Wheeler, and F. LaPorte. "Clinical decision making in pain management: Contributions of physician and patient characteristics to variations in practice." *Journal of Pain.* 4, no. 1(2003): 29-39 UI 14622725.

Differences in the quality of pain management may very well be due to physician characteristics and their treatment goals based on the type of pain or patient demographics. This study was done to (1) determine the role of physician characteristics in their goals and treatment of acute, cancer, and chronic pain and (2) provide an evaluation of the differences in physician pain management decision making due to patient characteristics and the type of pain being treated. A prospective cohort study of 368 Michigan physicians was done to determine their pain management knowledge, attitudes, and prescribing habits via study-specific multi-item mail survey. Nine clinical vignettes were used to examine potential differences in the physician's pain management based on the type of pain and patient demographic characteristics. The responses of the study group varied on the basis of the type of pain and gender of the patient. They were more likely to provide optimal treatment for men with acute postoperative or cancer pain. The physicians

also reported lesser goals for relief of chronic pain when compared to acute and cancer pain. Lower goals for chronic pain relief may lead to the undertreatment of chronic pain. This study demonstrates that the provision of adequate pain management may be influenced by patient characteristics and physician variability.

Heit, H. A. "Addiction, physical dependence, and tolerance: precise definitions to help clinicians evaluate and treat chronic pain patients." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 15-29 UI 14640337.

Pain is among the most common complaints for which people seek medical care; yet pain is also among the most undertreated patient complaints. Reasons for this include reluctance by clinicians to prescribe and support the use of opioids, often due to a fear of addiction. To address this issue, three major health professional organizations that deal with the treatment of pain and addiction, the American Academy of Pain Medicine, the American Pain Society, and the American Society of Addiction Medicine, formed the Liaison Committee on Pain and Addiction (LCPA). The first mission of the LCPA was to formulate precise definitions of the terms addiction, physical dependence, and tolerance. This report explains these definitions and discusses how they apply to clinical practice. [References: 30]

Henrikson, C. A., et al. "Chest pain relief by nitroglycerin does not predict active coronary artery disease.[see comment]." *Annals of Internal Medicine.* 139, no. 12(2003): 979-86 UI 14678917.

BACKGROUND: The belief that chest pain relief with nitroglycerin indicates the presence of active coronary artery disease is common. However, this hypothesis has not been tested. OBJECTIVE: To define the diagnostic and prognostic value of chest pain relief with nitroglycerin. DESIGN: Prospective observational cohort study. SETTING: Urban community teaching hospital. PATIENTS: 459 consecutive patients with chest pain admitted through the emergency department who received nitroglycerin from emergency services personnel or an emergency department nurse. Follow-up was obtained by telephone contact at 4 months. MEASUREMENTS: Chest pain relief was defined as a decrease of at least 50% in patients' self-reported pain within 5 minutes of the initial dose of sublingual or spray nitroglycerin. Active coronary artery disease was defined as any elevated serum enzyme levels, coronary angiography demonstrating a 70% or greater stenosis, or a positive exercise test result. RESULTS: Nitroglycerin relieved chest pain in 39% of patients (181 of 459). In patients with active coronary artery disease as the likely cause of their chest pain, 35% (49 of 141) had chest pain relief with nitroglycerin. In contrast, in patients without active coronary artery disease, 41% (113 of 275) had chest pain relief ($P > 0.2$). Four-month clinical outcomes were similar in patients with or without chest pain relief with nitroglycerin ($P > 0.2$). CONCLUSIONS: These data suggest that, in a general population admitted for chest pain, relief of pain after nitroglycerin treatment does not predict active coronary artery disease and should not be used to guide diagnosis.

Herrero, J. F., et al. "Antinociception and the new COX inhibitors: research approaches and clinical perspectives." *CNS Drug Reviews.* 9, no. 3(2003): 227-52 UI 14530796.

New generations of cyclooxygenase (COX) inhibitors are more potent and efficacious than their traditional parent compounds. They are also safer than the classic non-steroidal anti-inflammatory drugs (NSAIDs) and are starting to be used not only for low to moderate intensity pain, but also for high intensity pain. Three different strategies have been followed to improve the pharmacological profile of COX inhibitors: 1. Development of COX-2 selective inhibitors. This is based on the initial hypothesis that considered COX-2 as the enzyme responsible for the generation of prostaglandins only in inflammation, and, therefore, uniquely

responsible for inflammation, pain and fever. Initial expectations gave rise to controversial results, still under discussion. The second generation of these compounds is being developed and should contribute to clarifying both their efficacy and the specific functions of the COX enzymes. 2. Modified non-selective COX inhibitors. Molecules like nitro-NSAIDs or tromethamine salt derivatives have been synthesized considering that both COX-1 and COX-2 are responsible for the synthesis of prostaglandins involved either in homeostatic functions or inflammation. Nitroaspirin, nitroparacetamol or dexketoprofen trometamol are some examples of molecules that are already showing an important clinical efficacy. The modifications performed in their structures seem to lower the unwanted side effects as well as to enhance their analgesic efficacy. 3. Combined therapy of classic NSAIDs with other drugs. This strategy looks for improvements in the incidence of adverse effects or to take advantage of the synergistic enhancement of their therapeutic effects. Some of the molecules resulting from these strategies are very valuable as therapeutic agents and open a wide range of possibilities in the treatment of high intensity pain, including neuropathic pain, and opiate sparing therapy. [References: 145]

Hierholzer, J., et al. "Percutaneous osteoplasty as a treatment for painful malignant bone lesions of the pelvis and femur." *Journal of Vascular & Interventional Radiology.* 14, no. 6(2003): 773-7 UI 12817045.

The purposes of this report are to describe percutaneous osteoplasty as a highly effective minimally invasive procedure to treat painful malignant bone lesions of the pelvis, ilium, and femur and to discuss the relevant literature. Five patients with histologically proven metastases to the pelvis, ilium, or femur were treated by percutaneous injection of liquid bone cement as an attempt to control severe bone pain. After percutaneous osteoplasty, all five patients experienced immediate and substantial pain relief and did not require pain medication for the duration of follow-up. No clinically significant complications occurred. Whereas percutaneous osteoplasty of the spine (vertebroplasty) is well-described and widely accepted to treat pain caused by benign or malignant vertebral body diseases, osteoplasty of bones outside the spine is less known. The immediate good clinical results observed in our small patient group should encourage more widespread application of this palliative treatment.

Hocking, G., and M. J. Cousins. "Ketamine in chronic pain management: an evidence-based review." *Anesthesia & Analgesia.* 97, no. 6(2003): 1730-9 UI 14633551.

Ketamine has diverse effects that may be of relevance to chronic pain including: N-methyl-D-aspartic acid, alpha-amino-3-hydroxy-5-methyl-4-isoxazolepropionic acid, kainate, gamma-aminobutyric acid(A) receptors; inhibition of voltage gated Na(+) and K(+) channels and serotonin, dopamine re-uptake. Ketamine has been in clinical practice for over 30 yr; however, there has been little formal research on the effectiveness of ketamine for chronic pain management. In this review we evaluate the available clinical data as a basis for defining the potential use of ketamine for chronic pain. Literature referenced in this review was obtained from a computer search of EMBASE and MEDLINE from 1966 through August, 2002. Search terms included ketamine, ketalar, pain, painful, analgesic, and analgesia. Abstracts were screened for relevance and publications relating to chronic pain use were obtained. Levels of evidence were stratified according to accepted guidelines (level I-IV). For central pain, there is level II and level IV evidence of efficacy for parenteral and oral ketamine. For complex regional pain syndromes, there is only level IV evidence of efficacy of epidural ketamine. For fibromyalgia, there is level II evidence of pain relief, reduced tenderness at trigger points, and increased endurance. For ischemic pain, a level II study reported a potent dose-dependent analgesic effect, but with a narrow therapeutic window. For nonspecific neuropathic pain, level II and level IV

studies reported divergent results with questionable long-term effects on pain. For phantom limb pain and postherpetic neuralgia, level II and level II studies provided objective evidence of reduced hyperpathia and pain relief was usually substantial either after parenteral or oral ketamine. Acute on chronic episodes of severe neuropathic pain represented the most frequent use of ketamine as a "third line analgesic," often by IV or subcutaneous infusion (level IV). In conclusion, the evidence for efficacy of ketamine for treatment of chronic pain is moderate to weak. However, in situations where standard analgesic options have failed ketamine is a reasonable "third line" option. Further controlled studies are needed. [References: 47]

Hosono, M., et al. "Increased expression of T cell activation markers (CD25, CD26, CD40L and CD69) in atherectomy specimens of patients with unstable angina and acute myocardial infarction." *Atherosclerosis.* 168, no. 1(2003): 73-80 UI 12732389.

Atherosclerotic plaques contain a chronic immune mediated inflammation in which T cells play an important role. A previous study revealed that the numbers of interleukin-2 receptor-positive T cells is increased in culprit lesions of patients with acute coronary syndromes; a finding of considerable interest since it indicates a recent change in the intraplaque T cell mediated immune response. Confirmation of this observation is important, because it could provide insight into the onset of the acute event. We have, therefore, expanded our earlier work by using a panel of different T cell activation markers (CD25, CD26, CD40L, CD69). The study is based on 58 culprit lesions from patients who underwent coronary atherectomy. There were four groups of patients: chronic stable angina (n=13), stabilized unstable angina (n=16), refractory unstable angina (n=15), and acute myocardial infarction (AMI; n=14). Activated T cells were expressed as a percentage of the total of CD3-positive cells. CD25, CD26, CD40L, and CD69/CD3 percentages increased with the severity of the coronary syndrome. In patients with AMI all percentages were significantly higher than in patients with chronic stable angina. CD25, CD26, CD40L, and CD69/CD3 percentages in patients with an unstable condition (refractory unstable angina and AMI) were significantly higher than those in patients with a stable condition (chronic stable or stabilized unstable angina) The finding that the percentage of T cells with recent onset activation is significantly increased in the culprit lesions of patients with acute coronary syndromes suggests strongly that a recent change in pathogenic stimulation has occurred leading to local T cell activation.

Huikeshoven, M., et al. "Improved quality of life after XeCl excimer transmyocardial laser revascularization: results of a randomized trial." *Lasers in Surgery & Medicine.* 33, no. 1(2003): 1-7 UI 12866115.

BACKGROUND AND OBJECTIVES: We assessed quality of life (QOL) after XeCl transmyocardial laser revascularization (TMLR). STUDY DESIGN/MATERIALS AND METHODS: Thirty patients were randomized to receive XeCl excimer TMLR or optimal cardiac medication (controls). QOL was assessed at baseline, 1, 3, 6, and 12 months using three different questionnaires: The Medical Outcomes Study Short Form-24 (MOS SF-24), the EuroQol Standardized Questionnaire, and the Seattle Angina Questionnaire (SAQ). The primary outcome measure was the change in score between baseline and 12 months. RESULTS: TMLR patients scored significantly better compared to controls in the MOS SF-24 social functioning, energy, general health, and bodily pain domains, in the EuroQol usual activity domain and the EuroQol Visual Analogue Scale, and in the SAQ physical limitation, angina frequency and disease perception domains. CONCLUSIONS: QOL significantly improved after XeCl excimer TMLR compared to medication. These results are similar to reported improvements in QOL after CO(2) and Ho:YAG TMLR. Copyright 2003 Wiley-Liss, Inc.

Jackson, K. C., 2nd, and A. Mannes. "Persistent pain management for improved quality of life." *Journal of the American Pharmacists Association: JAPhA.* 43, no. 5 Suppl 1(2003): S30-1 UI 14626523.

Persistent pain may arise from a variety of disease states or may not be associated with any obvious pathology. Persistent pain affects almost every aspect of a patient's life, drastically affecting quality of life. Treatment strategies must be individually tailored to the patient to address all manifestations of the patient's suffering. To provide better care for patients with persistent pain, health care providers should educate themselves about the distinctions among addiction, physical dependence, pseudoaddiction, tolerance, and pseudotolerance.

Jensen, M. P. "Questionnaire validation: a brief guide for readers of the research literature." *Clinical Journal of Pain.* 19, no. 6(2003): 345-52 UI 14600534.

Because of the importance of pain assessment to understanding the nature and scope of pain problems, and for testing the efficacy of pain treatments, new pain measures are frequently developed. Research that describes the development and evaluation of pain measures should include detailed information concerning the validity and reliability of the measures. However, for the findings from this research to be most useful, the consumers of this research (clinicians and researchers who use pain measures) should understand the concepts of validity and reliability, and the procedures used for evaluating these in pain assessment research. The purpose of this commentary is to provide a summary of these psychometric issues, using the study and findings of Krause and Backonja as an illustrative example of the concepts.

Kaiser, B. "DX-9065a Daiichi." *Current Opinion in Investigational Drugs.* 4, no. 9(2003): 1105-12 UI 14582456.

DX-9065a is a Factor Xa inhibitor under development by Daiichi as an anticoagulant for the potential treatment of cardiovascular indications, including thrombosis and angina. By March 1996, DX-9065a had entered phase I trials in Japan and Europe, and by November 1998, it was in phase II trials in Japan. In February 2003, phase II trials for the prevention of myocardial infarction in patients with unstable angina pectoris were ongoing in Japan, Europe and the US. [References: 64]

Kalso, E., et al. "Recommendations for using opioids in chronic non-cancer pain.[see comment]." *European Journal of Pain: Ejp.* 7, no. 5(2003): 381-6 UI 12935789.

1. The management of chronic pain should be directed by the underlying cause of the pain. Whatever the cause, the primary goal of patient care should be symptom control. 2. Opioid treatment should be considered for both continuous neuropathic and nociceptive pain if other reasonable therapies fail to provide adequate analgesia within a reasonable timeframe. 3. The aim of opioid treatment is to relieve pain and improve the patient's quality of life. Both of these should be assessed during a trial period. 4. The prescribing physician should be familiar with the patient's psychosocial status. 5. The use of sustained-release opioids administered at regular intervals is recommended. 6. Treatment should be monitored. 7. A contract setting out the patient's rights and responsibilities may help to emphasize the importance of patient involvement. 8. Opioid treatment should not be considered a lifelong treatment.

Kandzari, D. E. "Catheter-based revascularization of the hepatic artery to treat coronary steal from a gastroepiploic artery bypass graft." *Journal of Invasive Cardiology.* 15, no. 10(2003): 591-3 UI 14519894.

During diagnostic cardiac catheterization for symptoms of progressive angina, a high-grade ostial stenosis of an aberrant hepatic artery was identified. The common

hepatic artery, which originated directly from the aorta rather than the celiac artery, supplied an in situ gastroepiploic artery bypass graft to the distal right coronary artery. Reduced flow within the bypass graft was observed consistent with a steal phenomenon from the coronary artery. This report describes successful angioplasty and stenting of the hepatic artery to salvage the gastroepiploic bypass graft and resolve the patient s ischemic symptoms. [References: 15]

Kanjwal, M. Y., D. J. Kosinski, and B. P. Grubb. "Treatment of postural orthostatic tachycardia syndrome and inappropriate sinus tachycardia." *Current Cardiology Reports.* 5, no. 5(2003): 402-6 UI 12917056.

Postural orthostatic tachycardia syndrome and inappropriate sinus tachycardia are two clinically different entities but with significant overlap of symptoms. Treatment by and large is medical; however, other modalities of treatment are being evaluated. [References: 32]

Kerr, D. P., D. M. Walsh, and D. Baxter. "Acupuncture in the management of chronic low back pain: a blinded randomized controlled trial." *Clinical Journal of Pain.* 19, no. 6(2003): 364-70 UI 14600536.

OBJECTIVE: To assess the efficacy of acupuncture in the treatment of chronic low back pain. METHODS: Patients (n = 60) with chronic low back pain were recruited and randomly allocated to either Acupuncture therapy or Placebo transcutaneous electrical nerve stimulation (TENS) groups. Patients were treated weekly for 6 weeks, and blinded assessments were carried out pre- and post-treatment using the McGill Pain Questionnaire (MPQ) and visual analog scales (VAS) for pain, the Short-form 36 quality-of-life questionnaire, and a simple range of motion measurement. A total of 46 patients completed the trial and were followed up at 6 months. RESULTS: Analysis of results using t tests showed that in both groups there were significant pre-post improvements for all scores, except for MPQ scores in the Placebo-TENS group. There was no significant difference between the 2 groups for any of the outcome measures at the end of treatment. Results from the 6-month follow-up would suggest that the response was better in the acupuncture group. DISCUSSION: Further research is necessary to fully assess the efficacy of this treatment in combating chronic low back pain using larger sample sizes or alternative control groups.

Khatri, A., D. C. Rine, and S. Khatri. "Software reuse reference model approach in developing an automated medical information system (AMIS) for improving health care practice." *Headache.* 43, no. 7(2003): 790-3 UI 12890135.

OBJECTIVE: To evaluate patient acceptance of an automated medical information system specific to headache. BACKGROUND: Studies suggest that automated tools may help health care delivery systems to be efficient and effective, but patient satisfaction remains a major concern. METHODS: We adapted our software reuse reference model and Unified Modeling Language to apply the domain model to the headache population. Patients with headache were tested both to validate the system and to evaluate patient satisfaction and headache management with an automated system. RESULTS: The mean age of all study participants was 44 years. Over 95% of the participants were satisfied or strongly satisfied with the Automated Medical Information System. CONCLUSIONS: The results strongly suggest that patients are willing and able to use nontraditional sources, such as the Automated Medical Information System, to learn about their illnesses.

Krause, B. R., and R. S. Newton. "Is there a 'treatment gap' in acute coronary syndromes?" *Current Opinion in Investigational Drugs.* 4, no. 9(2003): 1046-7 UI 14582446.

Kulkarni, M., and D. Elliot. "Local anaesthetic infusion for postoperative pain." *Journal of Hand Surgery - British Volume.* 28, no. 4(2003): 300-6 UI 12849938.

The role of continuous bupivacaine infusion either into the wound or as a local nerve block, following hand surgery was investigated in 100 patients. After excluding six patients with complex pain problems in whom neither the bupivacaine infusion nor any other conventional analgesic techniques provided adequate analgesia post-operatively, 86 of 94 (91%) patients were adequately treated for post-operative pain by this system during the first night after surgery when pain is presumed to be greatest. This system also provided adequate on-going analgesia for up to 1 week after surgery, controlling nerve pain and allowing mobilization of tendons after tenolysis. Continuous bupivacaine infusion is of particular use in these two groups of patients and after major hand injuries, when considerable pain can be anticipated. Pain during the first night was not controlled adequately by the bupivacaine infusion system in eight of the 94 patients (8%). All eight had a technical failure of the system, which was rectified in six cases to restore adequate analgesia by the infusion system. Two patients developed infection at the infusion cannula insertion site, which occurred only after 1 week and was successfully treated by removal of the cannula and oral antibiotics.

Kwekkeboom, K. L., J. Kneip, and L. Pearson. "A pilot study to predict success with guided imagery for cancer pain." *Pain Management Nursing.* 4, no. 3(2003): 112-23 UI 14566709.

Guided imagery, as other nonpharmacologic strategies, has been demonstrated to be useful for some patients. However, no tested method exists to identify which patients are likely to benefit from this pain management strategy. This pilot study tested a model to predict success with guided imagery. Major concepts tested included imaging ability, outcome expectancy, history of imagery use, match with preferred coping style, and perceived credibility of the imagery provider. A one-group pretest-posttest design was used. A sample of 62 hospitalized cancer patients currently experiencing pain rated >/=3 on a 0 to 10 scale completed questionnaires and used an audiotaped imagery intervention. Pain outcomes examined included mean pain intensity and distress, positive and negative affect, and perceived control over pain. A path analysis was conducted using multiple regression to evaluate relationships proposed in the model. Previous history with imagery predicted outcome expectancy. Imaging ability predicted mean pain intensity, positive affect, and perceived control over pain. Outcome expectancy was not a significant predictor of any pain outcomes. Baseline status and concurrent symptoms, measured as covariates, also played a significant role in predicting outcomes. Variance explained in pain outcomes ranged from 10% to 52% (adjusted R(2) = 3% to 48%). Further exploration of model variables is warranted. Findings suggest that after considering current symptom experience, imaging ability may be a useful variable to assess in order to determine whether guided imagery is an appropriate intervention for individual patients.

Levin, M., and T. N. Ward. "Laughing headache: a novel type of triggered headache with response to divalproex sodium." *Headache.* 43, no. 7(2003): 801-3 UI 12890138.

Levy, M. J., et al. "Acromegaly: a unique human headache model." *Headache.* 43, no. 7(2003): 794-7 UI 12890136.

Lipman, A. G. "Symptom control in advanced disease: why all the fuss?" *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 1-3 UI 14649385.

Litvinova, L., and J. A. Nord. "Acute rheumatic fever presenting as unstable angina." *Southern Medical Journal.* 96, no. 11(2003): 1154-5 UI 14632368.

Lutfy, K., et al. "Buprenorphine-induced antinociception is mediated by mu-opioid receptors and compromised by concomitant activation of opioid receptor-like receptors." *Journal of Neuroscience.* 23, no. 32(2003): 10331-7 UI 14614092.

Buprenorphine is a mixed opioid receptor agonist-antagonist used clinically for maintenance therapy in opiate addicts and pain management. Dose-response curves for buprenorphine-induced antinociception display ceiling effects or are bell shaped, which have been attributed to the partial agonist activity of buprenorphine at opioid receptors. Recently, buprenorphine has been shown to activate opioid receptor-like (ORL-1) receptors, also known as OP4 receptors. Here we demonstrate that buprenorphine, but not morphine, activates mitogen-activated protein kinase and Akt via ORL-1 receptors. Because the ORL-1 receptor agonist orphanin FQ/nociceptin blocks opioid-induced antinociception, we tested the hypothesis that buprenorphine-induced antinociception might be compromised by concomitant activation of ORL-1 receptors. In support of this hypothesis, the antinociceptive effect of buprenorphine, but not morphine, was markedly enhanced in mice lacking ORL-1 receptors using the tail-flick assay. Additional support for a modulatory role for ORL-1 receptors in buprenorphine-induced antinociception was that coadministration of J-113397, an ORL-1 receptor antagonist, enhanced the antinociceptive efficacy of buprenorphine in wild-type mice but not in mice lacking ORL-1 receptors. The ORL-1 antagonist also eliminated the bell-shaped dose-response curve for buprenorphine-induced antinociception in wild-type mice. Although buprenorphine has been shown to interact with multiple opioid receptors, mice lacking micro-opioid receptors failed to exhibit antinociception after buprenorphine administration. Our results indicate that the antinociceptive effect of buprenorphine in mice is micro-opioid receptor-mediated yet severely compromised by concomitant activation of ORL-1 receptors.

Manchikanti, L., et al. "Prevalence of prescription drug abuse and dependency in patients with chronic pain in western Kentucky." *Journal of the Kentucky Medical Association.* 101, no. 11(2003): 511-7 UI 14635580.

McCullough, P. A. "Acute coronary syndromes in patients with renal failure." *Current Cardiology Reports.* 5, no. 4(2003): 266-70 UI 12801443.

As the rates of obesity and diabetes continue to rise sharply in the United States, there is a secondary epidemic of diabetic nephropathy, chronic kidney disease, and end-stage renal disease requiring renal replacement therapy. Cardiovascular disease is the leading cause of death in patients with renal disease. Many sources of information support the concept that the metabolic condition caused by renal failure is an independent cardiac risk factor with a direct relationship to the pathogenesis of atherosclerosis, acute coronary syndromes (ACS), heart failure, and arrhythmias. An estimated glomerular filtration rate less than 60 mL/min/1.73 m(2) has consistently been shown to be the most powerful predictor of adverse outcomes in ACS. This paper focuses on ACS and highlights the major issues with respect to diagnosis and treatment in patients with underlying renal failure. Because patients with renal disease are routinely excluded from clinical trials of ACS, we draw upon a variety of clinical data sets to gather an evidenced-based approach to this important and growing population of patients. [References: 23]

McNaughton Collins, M. "The impact of chronic prostatitis/chronic pelvic pain syndrome on patients." *World Journal of Urology.* 21, no. 2(2003): 86-9 UI 12682773.

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a common condition, affecting men of all ages. Since mortality and serious complications are

extremely uncommon, CP/CPPS is primarily a quality-of-life disease, and, therefore, the patient's perspective is of paramount importance. As with other non-life threatening diseases, the goal of treatment is to maximize quality not quantity of life. Scientifically validated methods to measure patients' health related quality of life have been applied in other urological diseases such as benign prostatic hyperplasia and interstitial cystitis; the same process is now underway in the study of CP/CPPS. Recent studies have shown that CP/CPPS takes a substantial toll on physical and mental health. In addition to examining the health related quality of life of patients with CP/CPPS, future studies should address additional patient-centered outcomes, such as satisfaction with care and the economic burden of the illness, in order to allow a more comprehensive understanding of the impact of this condition on patients. [References: 20]

Melton, L. "Taking a shot at neuropathic pain." *Lancet. Neurology.* 2, no. 12(2003): 719 UI 14649243.

Miller, J. S., and M. A. Pinnington. "Straightforward consultation or complicated condition? General practitioners' perceptions of low back pain." *European Journal of General Practice.* 9, no. 1(2003): 3-9 UI 14611007.

BACKGROUND: Low back pain is a common condition in general practice and represents a significant part of a general practitioner's workload. However, despite guidelines, back pain still presents considerable challenges to clinicians. OBJECTIVE: To explore the perceptions and declared behaviour of UK general practitioners in relation to patients with low back pain. METHOD: A qualitative design was used, involving semi-structured interviews with 17 GPs in the North of England. Interviews were transcribed verbatim and analysed using qualitative thematic analysis. RESULTS: Two major themes emerged from the data relating to approaches to and perceptions of low back pain. A dichotomy emerged, where GPs describe their approach to what they know to be a straightforward consultation where most patients recover, and the frustration they experience when patients do not. Although GPs are using a simple bio-mechanistic approach to low back pain, they also operate a method of categorising patients, which involves identifying real and pseudo patients. When confronted with 'challenging' cases, that is those who do not recover, most GPs feel isolated and poorly prepared. CONCLUSION: GPs adopt a bio-mechanistic approach to LBP which appears to work well for the majority of patients, as the natural history of low back pain dictates that most patients will recover. However, this approach to low back pain fails at the margins and this is evident by the significant minority of persistent sufferers and the GP's reaction to them. Expanding patient-centredness to explore psychological and social dimensions in relation to low back pain presents an ongoing challenge in general practice.

Moinzadeh, A., et al. "A randomized double-blind prospective study evaluating patient tolerance of transrectal ultrasound-guided biopsy of the prostate using prebiopsy rofecoxib." *Urology.* 62, no. 6(2003): 1054-7 UI 14665354.

OBJECTIVES: To assess the use of a prebiopsy outpatient analgesia using the nonsteroidal anti-inflammatory agent rofecoxib (Vioxx). Urologists perform approximately 500,000 transrectal ultrasound (TRUS)-guided biopsies of the prostate per year, commonly without analgesia. Recent reports, however, have determined that a significant proportion of patients undergoing TRUS-guided biopsies have pain. METHODS: We performed a prospective randomized double-blind study of 56 men referred for TRUS biopsy of the prostate. They were randomly assigned to receive 50 mg of oral rofecoxib or placebo before TRUS biopsy. After the biopsies, the patients were asked to score the severity of pain by filling out a visual analog pain scale. At the end of 1 week, all patients were asked to mail in a questionnaire regarding the morbidity of the prostate biopsy, including dysuria, hematuria, urinary retention,

postbiopsy fever, and rectal bleeding. Analysis was completed to assess whether rofecoxib decreased the patients' perception of pain. The postbiopsy morbidity of patients receiving placebo versus rofecoxib was compared. RESULTS: Thirty-seven percent of patients receiving placebo and 42% of patients receiving rofecoxib had significant pain (5 or greater on the visual analog pain scale). The median pain score of patients receiving rofecoxib (4.0) versus placebo (4.0) was not significantly different statistically (P = 0.3139) using a Wilcoxon rank sum analysis. The incidence of postbiopsy morbidity was not different. CONCLUSIONS: Our results confirm the findings of previous studies demonstrating that a significant proportion of patients undergoing prostate biopsies have pain. More importantly, we found that prebiopsy rofecoxib did not significantly decrease the patients' severity of discomfort. Finally, the morbidity after biopsy was not increased with the use of rofecoxib.

Morita, T., Y. Tei, and S. Inoue. "Agitated terminal delirium and association with partial opioid substitution and hydration." *Journal of Palliative Medicine.* 6, no. 4(2003): 557-63 UI 14516497.

BACKGROUND: Delirium is often a distressing symptom for both patients and their families, and its prevention is important. The primary aim of this study was to clarify the effects of partial opioid substitution and hydration on the occurrence of agitated delirium in the final stage of cancer. METHODS: An historical control study on consecutive terminally ill cancer patients admitted to a palliative care unit (164 in 1996-1997 and 120 in 2000-2001). In 2000-2001, we actively performed hydration and partial opioid substitution from morphine with fentanyl on individual grounds. Two independent raters evaluated the degree of agitation and cognitive impairment during the final week, using the Memorial Delirium Assessment Scale, the Agitation Distress Scale, the Communication Capacity Scale, and a consciousness scale. RESULTS: Compared to 1996-1997, in 2000-2001, the use of artificial hydration (33% to 44%, p = 0.053) and opioid rotation (3.0% to 41%, p < 0.01) increased, while there were no statistically significant differences in hydration volume, the mean dose, and the high-dose requirements of morphine. The prevalence of agitated delirium, the agitation score, the percentage of patients achieving clear-complex communication, and the percentage of patients who maintained clear consciousness did not significantly change. CONCLUSIONS: Partial opioid substitution with fentanyl and moderate levels of hydration had no significant preventive effects on the occurrence of agitated delirium in the last week on a mass level. We should explore new strategies to prevent agitated delirium that are practically available in Japan.

Morley, J. S., et al. "Low-dose methadone has an analgesic effect in neuropathic pain: a double-blind randomized controlled crossover trial." *Palliative Medicine.* 17, no. 7(2003): 576-87 UI 14594148.

The analgesic effectiveness and adverse effect incidence of a daily dose of 10 or 20 mg of oral methadone were evaluated in 18 patients with a diverse range of chronic neuropathic pain syndromes, who had all responded poorly to traditional analgesic regimens. Analgesia was seen after each dose of methadone. As compared with placebo, the 20 mg daily dose (given as 10 mg bd) resulted in statistically significant (P = 0.013-0.020) improvements in patient Visual Analogue Scale ratings of maximum pain intensity, average pain intensity and pain relief, recorded at the same time daily. The analgesic effects extended over 48 hours, as shown by statistically significant (P = 0.013-0.020) improvements in all three outcomes on the rest days instituted between each daily dose. Analgesic effects (lowered maximum pain intensity and increased pain relief, on the day of dosing only) were also seen when the lower daily dose of 10 mg methadone (given as 5 mg bd) was used, but these failed to reach statistical significance (P = 0.064 and 0.065, respectively). Interpatient analysis showed that the analgesic effects were not restricted to any particular type of neuropathic pain. Patient compliance was high throughout the trial.

One patient withdrew during the 10 mg and six during the 20 mg methadone treatment periods. This is the first double-blind randomized controlled trial to demonstrate that methadone has an analgesic effect in neuropathic pain.

Mukherjee, D., and K. A. Eagle. "Revised guidelines for the management of non-ST-segment elevation acute coronary syndromes." *Current Cardiology Reports.* 5, no. 4(2003): 289-95 UI 12801448.

Unstable angina (UA) and non-ST-segment elevation myocardial infarction (NSTEMI) refer to a spectrum of acute severe cardiac disorders characterized by myocardial oxygen demand and supply mismatch, caused by atherosclerotic coronary artery disease. Patients presenting with acute coronary syndromes represent a major medical problem, accounting for 2.5 million hospitalizations and 500000 deaths annually in the United States alone. Of these, 1.5 million have a final diagnosis of UA, and myocardial infarction (ST-segment and non-ST-segment elevation) accounts for the remaining 1 million. The management of UA/NSTEMI presents a challenge to the cardiologist because treatment strategies continue to evolve. A number of trials have now assessed the safety and efficacy of early revascularization strategies in the treatment of patients with UA/NSTEMI, whereas others have focused on pharmacologic adjunctive therapy. An optimal single strategy encompassing most patients' needs is not clear. This review focuses on the revised American College of Cardiology/American Heart Association guidelines for the management of patients presenting with UA/NSTEMI. [References: 24]

Mullins, C. R., and T. L. Wild. "Pain management in a long-term care facility: compliance with JCAHO standards." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 63-70 UI 14649389.

An analysis of the treatment of nonmalignant pain in the elderly at a long-term facility was conducted to allow development of a pain management program that complies with both JCAHO guidelines for pain management and with the Tennessee Medicaid (TennCare) reimbursement schedule, and to determine if tramadol can meet the standards of pain management under these new guidelines. Inclusion criteria were residence in our long-term care facility; a pain intensity score > 4 on a modified Wong Baker Pain Scale; the patient having prescription orders for one or more of the following drugs: propoxyphene, meperidine, or high dosages of acetaminophen (approaching 4 g/day); suspected neuropathic or mixed nociceptive/neuropathic pain; and/or a diagnosis of diabetes, osteoarthritis, or degenerative joint disease. Exclusion criteria were history of seizures, history of opioid or alcohol abuse, and demonstrated hypersensitivity to tramadol or opioids. Tramadol administration began at a dose of 25 mg/day titrated up to a maximum of 300 mg/day over a 16-day period. Data were collected from computer records, dispensing reports, medication administration reports (MARs), current federal minimum data set (MDS) data, and weekly care plan meetings. Data were tabulated at baseline and 4-6 weeks after a stable dose of tramadol had been established. Fourteen residents (mean age 85 years, 1 male, 13 female) met the criteria and received tramadol up to 300 mg/day (qid). Tramadol reduced the residents' pain scores from an average of 6 to 2 using the Modified Wong Baker Pain Scale, reduced the percentage of residents taking propoxyphene from 50% to 14%, and reduced those taking high doses of APAP or APAP products from 43% to 14%. Tramadol reduced the percentage of residents falling, losing weight, showing no change or decline in activities in daily living (ADLs), displaying inappropriate behavioral symptoms, suffering depression, and/or taking psychotropic medications. In the state of Tennessee, new reimbursement schedules by TennCare have allowed our hospital to comply with the JCAHO standards of "optimal achievable care" for the treatment of pain by allowing the hospital staff to treat patients with newer, safer, more effective analgesics such as tramadol. Early results from this ongoing study

have shown that tramadol can provide a safe and effective treatment on non-malignant pain in a long-term care facility and improve adherence to JCAHO and TennCare standards for proper pain management.

Murphy, P. M., et al. "Optimizing the dose of intrathecal morphine in older patients undergoing hip arthroplasty." *Anesthesia & Analgesia.* 97, no. 6(2003): 1709-15 UI 14633547.

Intrathecal (IT) morphine provides excellent postoperative analgesia but may result in many side effects, including postoperative nausea and vomiting, pruritus, and respiratory depression, particularly at larger doses. Older patients may be at particular risk. The optimal dose of spinal morphine in older patients undergoing hip arthroplasty is not known. We designed this prospective, randomized, controlled, double-blinded study to evaluate the analgesic efficacy and side effect profile of 50-200 microg of IT morphine in older patients undergoing elective hip arthroplasty. Sixty patients older than 65 years undergoing elective hip arthroplasty were enrolled. Patients were randomized to receive spinal anesthesia with 15 mg of bupivacaine and IT morphine in four groups: 1). 0 microg, 2). 50 microg, 3). 100 microg, and 4). 200 microg. IT morphine 100 and 200 microg produced effective pain relief and decreased the postoperative requirement for morphine compared with control. IT morphine 50 microg did not provide effective pain relief. Both 100 and 200 microg of IT morphine provided comparable levels of postoperative analgesia. There were no between-group differences in postoperative nausea and vomiting, sedation, respiratory depression, or urinary retention. Pruritus was significantly more frequent with 200 microg of IT morphine. In conclusion, 100 microg of IT morphine provided the best balance between analgesic efficacy and side effect profile in older patients undergoing hip arthroplasty. IMPLICATIONS: The dosage of intrathecal morphine that provides the best balance between analgesic efficacy and side effect profile in the older patient undergoing hip arthroplasty is not known. This prospective, randomized, controlled, double-blinded clinical trial demonstrates that a dose of 100 microg of intrathecal morphine provides the best balance between efficacy and side effects, compared with doses of 0, 50, and 200 microg of morphine, in this patient population.

Mystakidou, K., et al. "Long-term management of noncancer pain with transdermal therapeutic system-fentanyl." *Journal of Pain.* 4, no. 6(2003): 298-306 UI 14622686.

Transdermal therapeutic system-fentanyl (TTS-F) has been extensively studied in cancer pain management. However, few studies have addressed the long-term management of noncancer pain, especially when it relates to neuropathic pain. A total of 529 patients were recruited into this prospective open-label study to determine the safety and effectiveness of TTS-F in relation to quality-of-life (QOL) stratified according to pain type and etiology. TTS-F significantly improves QOL within 28 days, and pain management within 48 hours. The frequency of side effects rapidly decreases over time, and patients not experiencing adequate pain management are identified within 28 days. The median duration of therapy for effective pain management was 10 months, and 90% of patients sustained such efficacy. TTS-F offers statistically significant increases in QOL-Short Form 12 (including the Physical Component Scale and Mental Component Scale measures) and pain control (Greek Brief Pain Inventory) from one time point to the next ($P < .0001$). These improvements are not influenced by pain type or etiology. TTS-F is a safe and effective pain management system independent of patient characteristics and demographic factors. What is of most importance is that in those patients with neuropathic pain, for whom opioids have long been thought to be ineffective, similar effectiveness is demonstrated when compared to patients with nociceptive pain.

National Institutes of, H. "Symptom management in cancer: pain, depression and fatigue: State-of-the-Science Conference Statement." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 77-97 UI 14640346.

NIH Consensus Statements are prepared by a nonadvocate, non-Federal panel of experts, based on (1) presentations by investigators working in areas relevant to the consensus questions during a 2 day public session; (2) questions and statements from conference attendees during open discussion periods that are part of the public session; and (3) closed deliberations by the panel during the remainder of the second day and morning of the third. This statement is an independent report of the panel and is not a policy statement of the NIH or the Federal Government. The statement reflects the panel's assessment of medical knowledge available at the time the statement was written. Thus, it provides a "snapshot in time" of the state of knowledge on the conference topic. When reading the statement, keep in mind that new knowledge is inevitably accumulating through medical research. [References: 0]

Nelson, R. "Decade of pain control and research gets into gear in USA." *Lancet.* 362, no. 9390(2003): 1129 UI 14552337.

Nickel, J. C. "Recommendations for the evaluation of patients with prostatitis." *World Journal of Urology.* 21, no. 2(2003): 75-81 UI 12684835.

Prostatitis is a prevalent, confusing and frustrating clinical presentation for urologists. Three recent international and North American consensus meetings have drafted suggestions for the evaluation of a man presenting with prostatitis. Published consensus statements from the 2000 Washington meeting of the International Prostatitis Collaborative Network, the 2002 Virginia meeting of the National Institutes of Health Chronic Prostatitis Collaborative Research Network and the 2002 Giessen meeting of the International Consensus Conference on Advances in the Diagnosis and Treatment of Prostatitis were examined to develop suggestions for evaluation of the prostatitis patient by urologists. Clinical, laboratory and imaging evaluations for the patient presenting with prostatitis and chronic prostatitis/chronic pelvic pain syndrome can be categorized as basic or mandatory evaluations (which would include a complete history, focused physical examination, and urinalysis/urine culture), further or recommended evaluations (those that are recommended but not mandatory) and optional evaluations in selected patients. As more evidence and data are accumulated and published, these recommendations may eventually evolve into practice guidelines for the evaluation of men presenting with prostatitis symptoms. [References: 26]

Noronha, B., E. Duncan, and J. A. Byrne. "Optimal medical management of angina." *Current Cardiology Reports.* 5, no. 4(2003): 259-65 UI 12801442.

Coronary artery disease remains one of the principal causes of disability worldwide. Its most common manifestation is angina pectoris. Angina occurs due to an imbalance between myocardial oxygen demand and supply; it is classically precipitated by physical activity, emotion, eating, or cold weather. It is defined as stable when its frequency, severity, duration, time of appearance, and precipitating factors remain unchanged for 60 days. Treatment of patients with stable angina targets a number of factors that underlie its pathophysiology: aspirin as an antiplatelet agent, b-blockade to reduce myocardial oxygen demand, and additional antianginal drugs when symptoms are incompletely controlled by b-blockers alone. Furthermore, aggressive treatment of risk factors for the development of coronary artery disease confers a significant mortality benefit. Unstable angina is defined as symptoms developing at rest, on minimal exertion, and of increasing severity, duration, or frequency. It is associated with significant mortality; consequently, early assessment and intervention is essential to prevent worsening ischemia. Treatment includes close in-patient monitoring, administration of antiplatelet and antithrombotic

drugs, and a combination of b-blockers, calcium antagonists, and intravenous nitrates where appropriate. Coronary revascularization should be considered in high-risk patients, and when conservative management strategies fail. [References: 50]

Oh, K. Y., et al. "Limited abdominal MRI in the evaluation of acute right upper quadrant pain." *Abdominal Imaging.* 28, no. 5(2003): 643-51 UI 14628868.

BACKGROUND: We investigated whether limited abdominal magnetic resonance imaging (MRI) is as effective as transabdominal ultrasound (US) in evaluating patients presenting with acute right upper quadrant pain. METHODS: Twenty-four patients underwent evaluation with a limited abdominal MRI using single-shot fast spin-echo sequences and a right upper quadrant US within 24 h. Two MRI and two US readers independently evaluated the images for gallstones, gallbladder wall thickness, pericholecystic fluid, acute cholecystitis, visualization of the common bile duct, and requests for further imaging. US and MRI findings were compared. Surgical pathology was the gold standard. RESULTS: MRI and US demonstrated no statistically significant difference in the diagnosis of gallbladder wall thickening, the presence of gallstones or pericholecystic fluid, or the diagnosis of acute cholecystitis ($p > 0.05$). The sensitivity of both for acute cholecystitis was 50%, with specificities of 89% and 86% for US and MRI, respectively. US readers more frequently requested additional tests and displayed more variability in whether they could adequately see the common bile duct. CONCLUSION: Limited MRI is equivalent to US in diagnosing gallstones, gallbladder wall thickening, pericholecystic fluid, and acute cholecystitis in patients presenting with symptoms of acute right upper quadrant pain. Especially in sonographically challenging patients, limited MRI may provide a faster, easier method of diagnosis.

Olson, K., J. Hanson, and M. Michaud. "A phase II trial of Reiki for the management of pain in advanced cancer patients." *Journal of Pain & Symptom Management.* 26, no. 5(2003): 990-7 UI 14585550.

This trial compared pain, quality of life, and analgesic use in a sample of patients with cancer pain (n=24) who received either standard opioid management plus rest (Arm A) or standard opioid management plus Reiki (Arm B). Participants either rested for 1.5 hr on Days 1 and 4 or received two Reiki treatments (Days 1 and 4) one hour after their first afternoon analgesic dose. Visual analogue scale (VAS) pain ratings, blood pressure, heart rate, and respirations were obtained before and after each treatment/rest period. Analgesic use and VAS pain scores were reported for 7 days. Quality of life was assessed on Days 1 and 7. Participants in Arm B experienced improved pain control on Days 1 and 4 following treatment, compared to Arm A, and improved quality of life, but no overall reduction in opioid use. Future research will determine the extent to which the benefits attributed to Reiki in this study may have been due to touch.

Parham, W. A., and M. J. Kern. "Complex decision-making for percutaneous coronary intervention in a patient with coronary artery bypass grafting: use of FFR in multivessel lesion selection." *Catheterization & Cardiovascular Interventions.* 59, no. 4(2003): 468-70 UI 12891609.

Pavelka, K., et al. "Relief in mild-to-moderate pain is not a confounder in joint space narrowing assessment of full extension knee radiographs in recent osteoarthritis structure-modifying drug trials." *Osteoarthritis & Cartilage.* 11, no. 10(2003): 730-7 UI 13129692.

OBJECTIVE: To assess whether improvement in knee pain biased the determination of the structure-modifying effect reported for glucosamine sulfate in two recent 3-year, randomised, placebo-controlled clinical trials, in which conventional standing antero-posterior full extension knee radiographs were used for

the measurement of joint space narrowing, and in which pain relief might have improved knee full extension. DESIGN: Patients completing the 3-year treatment course were selected based on a WOMAC pain decrease at least equal to the mean improvement in the glucosamine sulfate arms in either of the original studies, irrespective of treatment with glucosamine sulfate or placebo (drug responders or placebo responders). In a second approach, 3-year completers were selected if their baseline standing knee pain (item #5 of the WOMAC pain scale) was 'severe' or 'extreme' and improved by any degree at the end of the trials. In both cases, changes in minimum joint space width were compared between treatment groups. RESULTS: Global knee pain was mild-to-moderate in the two study populations and in all patient subsets identified. There were obviously more pain improvers in the glucosamine sulfate subsets (N=76 in the two studies combined) than in the placebo subsets (N=57), but WOMAC pain scores improved to the same extent, which was as large as over 50% relative to baseline. Nevertheless, the placebo subsets in both studies underwent an evident mean (SD) joint space narrowing, which in the pooled analysis of both studies was -0.22 (0.80) mm, and was not observed with glucosamine sulfate: +0.15 (0.60) mm (P=0.003 vs placebo). Similar results were found in the smaller subsets with > or = severe baseline standing knee pain that improved after 3 years, with a joint space narrowing nevertheless of -0.28 (0.76) mm with placebo (N=26), not observed with glucosamine sulfate: +0.21 (0.68) mm (N=31; P=0.014 vs placebo). CONCLUSIONS: Knee pain relief did not bias the report of a structure-modifying effect of glucosamine sulfate in two recent long-term trials using conventional standing antero-posterior radiographs, possibly due to the mild-to-moderate patient characteristics.

Peady, C. J. "Epidural analgesia for patient undergoing hepatectomy.[comment]." *Anaesthesia & Intensive Care.* 31, no. 4(2003): 477; author reply 477 UI 12973976.

Pillai Riddell, R. R., and K. D. Craig. "Time-contingent schedules for postoperative analgesia: a review of the literature." *Journal of Pain.* 4, no. 4(2003): 169-75 UI 14622700.

The management of pain reflects a history of myths and misconceptions often based on the "common sense" of the time. Evidence-based approaches to patient care are now strongly advocated. Recognizing that the accepted practice for administering postoperative analgesics has become the time-contingent or around-the-clock (ATC) regime, this article reviews the existing literature in search of empirical evidence supporting this practice. The review was conducted through MEDLINE, with the database limited to articles in the English language, involving human subjects, and published between 1960 and 2000. Database searches included each of the terms schedule, ATC, time, regime, administration, hour, dosing, qid, q6h, q4h, pro re nata, regular, and prn. Furthermore, common pain relieving drugs used in the postoperative period also were used as search words. Every database search was qualified by the terms post-operative or postoperative. The search showed sparse empirical work warranting endorsement of this dosing regimen. Although a great deal is known about specific drugs and dosage requirements, research is needed that clearly examines optimal scheduling regimens if we are to maximize patient care. [References: 56]

Porro, C. A. "Functional imaging and pain: behavior, perception, and modulation." *Neuroscientist.* 9, no. 5(2003): 354-69 UI 14580120.

Time-dependent increases of local metabolic or blood flow rates have been described in spinal cord and brain during acute and chronic pain states in experimental animals, in parallel with changes of different behavioral endpoints of pain and hyperalgesia. In healthy human volunteers, pain intensity-related

hemodynamic changes have been identified in a widespread, bilateral brain system including parietal, insular, cingulate, and frontal cortical areas, as well as thalamus, amygdala, and midbrain. Specific patterns of activity may characterize hyperalgesic states and some chronic pain conditions. Forebrain nociceptive systems are under inhibitory control by endogenous opioids and can be affected by acute administration of mu-opioid receptor agonists. Anticipation of pain may in itself induce changes in brain nociceptive networks. Moreover, pain-related cortical activity can be modulated by hypnotic suggestions, focusing or diverting attention, and placebo. These findings begin to disclose the spatio-temporal dynamics of brain networks underlying pain perception and modulation. [References: 80]

Potts, J. M. "Chronic pelvic pain syndrome: a non-prostatocentric perspective." *World Journal of Urology.* 21, no. 2(2003): 54-6 UI 12819913.

Chronic prostatitis/chronic pelvic pain syndrome (CP/CPPS) is a common urological diagnosis affecting young and middle aged men. Symptoms of genital or pelvic pain associated with voiding or sexual dysfunction were historically attributed to an inflamed prostate gland. A review of urological and non-urological literature pertaining to CPPS was conducted in order to devise a plausible alternative description of this syndrome. Due to publisher's criteria, only select articles are included and cited for this purpose. Evidence of a bacterial etiology is non-existent, while evidence of prostatic inflammation is conflicting and non-specific. More plausible causes of prostatitis-like symptoms include musculoskeletal pain, pelvic floor muscular dysfunction, myofascial pain syndromes or functional somatic syndromes. Thorough evaluation and appropriate therapy for patients has been seriously hindered by decades of a prostatocentric approach to CP/CPPS. The following article introduces an alternative perspective. [References: 21]

Preiss, C., et al. "A randomized trial of unsedated transnasal small-caliber esophagogastroduodenoscopy (EGD) versus peroral small-caliber EGD versus conventional EGD." *Endoscopy.* 35, no. 8(2003): 641-6 UI 12929057.

BACKGROUND AND STUDY AIMS: Unsedated esophagogastroduodenoscopy (EGD) has advantages over sedated EGD - e. g., prevention of side effects related to sedation, less patient monitoring, and less expense. This study compared the feasibility and tolerance of transnasal small-caliber (TSC-EGD) and peroral small-caliber EGD (PSC-EGD) with conventional EGD (C-EGD). PATIENTS AND METHODS: A total of 150 patients referred for diagnostic EGD were randomly allocated to undergo either TSC-EGD, PSC-EGD, or C-EGD under local anesthesia if they agreed to receive sedation only on demand or in case of intolerance. Patients, endoscopists, and nurses completed questionnaires on the tolerability and quality of the examinations using a visual analogue scale (VAS), ranging from 1 (best/nonexistent) to 10 (worst/unbearable) after EGD. Small-caliber EGD and C-EGD were performed with 5.9-mm and 9.8-mm video endoscopes (Olympus), respectively. RESULTS: The patients' age, sex, experience with EGD, and anxiety before EGD did not differ significantly between the three groups, each consisting of 50 patients. TSC-EGD failed in four of the 50 patients (8 %) because of a narrow nasal tract; they underwent PSC-EGD. Complete examinations, including the second part of the duodenum and biopsy sampling, were possible in all patients. Patients examined with an ultrathin instrument required sedation significantly less often (TSC-EGD 6 %, PSC-EGD 18 %, C-EGD 44 %; $P < 0.01$) and consequently spent less time in the recovery room. TSC-EGD was initially more painful on insertion, but caused less gagging ($P<0.01$) than peroral EGD during the whole procedure. TSC-EGD caused mild epistaxis in one case. CONCLUSIONS: TSC-EGD was carried out safely and completely in 92 % of the patients. TSC-EGD and PSC-EGD were better tolerated and required sedation less often than conventional EGD. Transnasal diagnostic EGD

appears to be a promising alternative to peroral EGD, as it is associated with less gagging and a high level of patient satisfaction.

Price, P., et al. "The use of a new overlay mattress in patients with chronic pain: impact on sleep and self-reported pain." *Clinical Rehabilitation.* 17, no. 5(2003): 488-92 UI 12952153.

OBJECTIVE: To evaluate the use of an air flotation mattress overlay in patients with chronic pain. DESIGN: Four-week prospective AB design. SETTING: The mattress overlay was used in a community setting. SUBJECTS: Adult patients attending an outpatients clinic in a department of rheumatology, with chronic pain plus sleep problems, or pain sufficient to disturb sleep. INTERVENTIONS: An inexpensive low-pressure inflatable mattress overlay (Repose), which is readily portable and has no electrical supply, was introduced to the patients. They were encouraged to use the support surface every night. MAIN OUTCOME MEASURES: The primary outcome was measured by self-reported changes in sleep quantity and frequency of sleep disturbance. Secondary outcomes were self-reported changes in pain and use of analgesia, verified by medical notes. RESULTS: Nineteen female patients (mean age 61 years) completed the study. At baseline, mean length of sleep time was 3.8 h, with mean of 4.9 interruptions of mean 25.3 min: week 4, mean sleep time = 6.4 h, with a mean of 2.3 interruptions for mean 14.2 min (all measures $p < 0.001$). At baseline, median pain during the day was 6 and at night-time was 7; by week 4 a reduction in pain was reported both for the day (median = 5) and the night (median = 5) (both $p < 0.001$). Thirteen patients reported a reduction in the use of analgesia during the study. CONCLUSIONS: In this pilot study of a new mattress overlay, statistically significant improvements in sleep and pain were noted over a four-week period.

Raffa, R. B., et al. "Combination strategies for pain management." *Expert Opinion on Pharmacotherapy.* 4, no. 10(2003): 1697-708 UI 14521480.

At least two factors relating to pain management using oral analgesics suggest that combination strategies merit consideration: many pains arise from more than one physiological cause and current analgesics have adverse effect profiles that might be reduced by combination with another agent in smaller doses or with less frequent dosing. In addition to increased convenience, combinations sometimes also result in the unexpected benefit of synergy. But not all pains, clinical settings or combinations merit the extra expense or other potential negative features of fixed-ratio products. This review examines the multiple basic science, clinical and pharmacoeconomic issues relating to analgesic combinations and the methodologies available for assessing these issues. [References: 40]

Rammohan, C., and D. Fintel. "Dosing considerations and monitoring of low molecular weight heparins and glycoprotein IIb/IIIa antagonists in patients with renal insufficiency." *Current Cardiology Reports.* 5, no. 4(2003): 303-9 UI 12801450.

Glycoprotein IIb/IIIa inhibitors and low molecular heparins are important new components of the medical treatment for acute coronary syndromes (ACS). Renal insufficiency is a common comorbid condition and high-risk marker for ACS. The safety and efficacy of these treatments in ACS are dependent on the pharmacokinetics of the specific medication. Even though these treatments have been studied in large randomized controlled trials in ACS, there are few prospective data regarding their safety or efficacy in renal insufficiency. Most have been shown to be safe and effective in mild to moderate degrees of renal insufficiency; none have been thoroughly studied in severe renal disease or in patients requiring dialysis therapy. Future prospective trials should include patients with more severe renal

insufficiency, as well as combinations of the current recommended therapies. [References: 28]

Rapp, S. R., W. J. Rejeski, and M. E. Miller. "Physical function among older adults with knee pain: the role of pain coping skills." *Arthritis Care & Research.* 13, no. 5(2000): 270-9 UI 14635295.

OBJECTIVE: To evaluate the association between pain coping skills and disability among older adults with knee pain. METHODS: Baseline measures from 394 older adults with knee pain and disability who participated in a 30-month observational study were analyzed. Pain coping skills were correlated with self-reported disability and walking distance after controlling for covariates of disability. RESULTS: Pain coping skills were significantly associated with disability ($P < 0.05$) and distance walked ($P < 0.05$). Less catastrophic thinking and prayer, greater ignoring and reinterpretation of pain sensations, and stronger perceptions of pain control were associated with less disability and better physical function. CONCLUSION: Pain coping skills used by older adults with osteoarthritis and knee pain may play a significant role in determining disability.

Ray, W. J., and V. De Pascalis. "Temporal aspects of hypnotic processes." *International Journal of Clinical & Experimental Hypnosis.* 51, no. 2(2003): 147-65 UI 12908749.

The authors examine the cortical processes underlying the process of hypnosis, especially as related to the temporal appearance of specific waveforms in relation to pain. Nonhypnotic pain research suggests that in terms of temporal processing early EEG components are more sensory in nature, and later components are of a more emotional or evaluative nature. In the present work, the authors report that the influence of hypnosis is less on the EEG components associated with the initial sensory experience itself and more on the later components that carry with them rich cognitive/emotional information. The research reviewed in this paper clearly suggests an inhibitory process for the high susceptible individuals associated with the hypnotic analgesia.

Reid, M. C., et al. "Cognitive-behavioral therapy for chronic low back pain in older persons: a preliminary study." *Pain Medicine.* 4, no. 3(2003): 223-30 UI 12974821.

OBJECTIVE: To determine the feasibility and potential efficacy of providing cognitive-behavioral therapy (CBT) to older persons with chronic low back pain (CLBP). METHODS: This was an uncontrolled pilot study conducted at a senior housing center (SHC) in New Haven, Connecticut. Fourteen SHC residents aged 65 years and older who were cognitively intact (Mini Mental State Examination score > or =24) and had CLBP were recruited for the study. CBT was administered in 10 weekly individual sessions. Participants were phoned 5 days on average after each session (range: 3-7 days) to determine their comprehension and perceived usefulness of the CBT materials and adherence with the assigned homework exercises. Using standardized measures, we determined participants' levels of pain intensity, pain-related disability, and physical and social activity at baseline, and at 2 and 24 weeks posttreatment. RESULTS: Participants had a mean age of 77.4 (+/-7.9 SD) years and were mostly female (86%). Thirteen (93%) participants completed all 10 sessions. Comprehension of CBT, defined as self-reported understanding of the materials presented each week, exceeded 97%. The perceived usefulness of each treatment session was assessed on a 0-10 scale, and the mean ratings for the sessions ranged from 7.5-9.4. The mean number of days that participants practiced the homework exercises each week varied from 1.8 to 4.0. Significant reductions ($P < 0.01$) in participants' pain intensity and pain-related disability scores were found at the 2-week posttreatment (vs pretreatment) assessment. These treatment effects

waned over time, but did not return to pretreatment levels at 24 weeks. Participants' physical and social activity levels did not change. CONCLUSIONS: CBT is a feasible treatment for cognitively intact, older persons with CLBP, and may be efficacious as well.

Rihal, C. S., et al. "Indications for coronary artery bypass surgery and percutaneous coronary intervention in chronic stable angina: review of the evidence and methodological considerations." *Circulation.* 108, no. 20(2003): 2439-45 UI 14623791.

Roberts, G., et al. "Describing chronic pain: towards bilingual practice." *International Journal of Nursing Studies.* 40, no. 8(2003): 889-902 UI 14568370.

This paper reports on the findings of a pilot study that collated and categorised a range of Welsh-medium chronic pain descriptors and their conceptually equivalent English translations in order to provide a preliminary basis for chronic pain assessment amongst patients in the bilingual community of North West Wales. The results demonstrate the unique and complex nature of individual pain experiences and the challenges of meaningful interpretation, particularly when patient and practitioner do not share a common preferred language. Detailed analysis of the descriptors provided valuable insight into the patient's world, revealing cultural patterns of beliefs and behaviours as well as the suffering associated with chronic pain. Implications for improving chronic pain assessment amongst bilingual speakers are explored.

Robinson, M. E., et al. "Altering gender role expectations: effects on pain tolerance, pain threshold, and pain ratings." *Journal of Pain.* 4, no. 5(2003): 284-8 UI 14622698.

The literature demonstrating sex differences in pain is sizable. Most explanations for these differences have focused on biologic mechanisms, and only a few studies have examined social learning. The purpose of this study was to examine the contribution of gender-role stereotypes to sex differences in pain. This study used experimental manipulation of gender-role expectations for men and women. One hundred twenty students participated in the cold pressor task. Before the pain task, participants were given 1 of 3 instructional sets: no expectation, 30-second performance expectation, or a 90-second performance expectation. Pain ratings, threshold, and tolerance were recorded. Significant sex differences in the "no expectation" condition for pain tolerance ($t = 2.32$, $df = 38$, $P < .05$) and post-cold pressor pain ratings ($t = 2.6$, $df = 37$, $P < .05$) were found. Women had briefer tolerance times and higher post-cold pressor ratings than men. When given gender-specific tolerance expectations, men and women did not differ in their pain tolerance, pain threshold, or pain ratings. This is the first empirical study to show that manipulation of expectations alters sex differences in laboratory pain.

Roche, P. A., A. C. Klestov, and H. M. Heim. "Description of stable pain in rheumatoid arthritis: a 6 year study." *Journal of Rheumatology.* 30, no. 8(2003): 1733-8 UI 12913928.

OBJECTIVE: To study pain quality and variability in patients with rheumatoid arthritis (RA). METHODS: Pain, disease activity, and functional status were assessed 3 times over 6 years in an initial cohort of 120 clinic patients with chronic pain from RA. A pain visual analog scale and the McGill Pain Questionnaire (MPQ) were used to record pain intensity and quality. RA disease activity and function were measured. RESULTS: There was no statistically significant difference in any measure over the 3 assessments. RA pain intensity was moderate. The MPQ showed that sensory components of the pain were described in terms of pressure and constriction. Pain related affect was described with adjectives suggesting positive psychological

adaptation to pain. CONCLUSION: The results indicate a general profile of no change in pain sensation, affect, and emotional quality in clinic monitored patients with ongoing RA and ongoing, moderate levels of disease activity and function. The MPQ provides qualitative detail to patient's report of pain severity that could be a useful addition to longterm documentation of RA outcome. Regular MPQ documentation of current pain in outpatients could indicate whether any significant change in pain levels is reflected in altered word selection that reflects physiological or psychological change, and could assist clinicians to select the most appropriate form of therapy for RA pain.

Ronnevig, M., et al. "A descriptive study of early nonspecific chest pain after PTCA: important area for the acute health care personnel." *Heart & Lung: Journal of Acute & Critical Care.* 32, no. 4(2003): 241-9 UI 12891164.

BACKGROUND: Many patients report chest pain of varying intensity at various locations during the first hours after percutaneous transluminal coronary angioplasty (PTCA). OBJECTIVES: The aim of the study was to increase knowledge regarding differentiating between harmless chest pain versus ischemic chest pain, focusing on patients description of their pain. METHODS: A total of 192 patients after elective PTCA were interviewed twice. In addition patients experiencing chest pain within 6 hours after the procedure completed the McGill Pain Questionnaire (MPQ). RESULTS: Nonspecific chest pain occurred in 34 patients (18%) and ischemic chest pain in 6 (3%), whereas 152 (79%) did not report early chest pain after PTCA. The nonspecific pain group reported statistically significant less pain intensity (VAS P =.001), used fewer (P =.006) and qualitatively weaker (P =.008) words compared to the ischemic pain group. No predisposing factors that could predict chest pain were identified. CONCLUSIONS: Discriminators appear to be the pain intensity and the word descriptors. MPQ combined with a VAS could be valuable clinical tools with regard to patients' description of pain.

Rosenberg, R. N. "Pain 2003.[comment]." *Archives of Neurology.* 60, no. 11(2003): 1520 UI 14623721.

Ross, J. R., and C. Quigley. "Transdermal fentanyl: informed prescribing is essential." *European Journal of Pain: Ejp.* 7, no. 5(2003): 481-3 UI 12935801.

While morphine is historically the gold standard for the management of severe cancer pain, some patients either do not achieve adequate analgesia, or suffer intolerable side-effects. For these patients an alternative opioid is recommended. One such alternative is the potent mu opioid agonist fentanyl, delivered in a transdermal controlled release formulation. Similar to morphine, transdermal fentanyl is effective for the management of moderate to severe cancer pain. However, inappropriate prescribing of transdermal fentanyl, particularly in the clinical setting of unstable pain, can cause significant opioid toxicity, as highlighted in the case reports described.

Salvesen, R., and S. I. Bekkelund. "Aspects of referral care for headache associated with improvement." *Headache.* 43, no. 7(2003): 779-83 UI 12890133.

OBJECTIVE: To assess which aspects of referral care for headache are associated with improvement of pain and subjective quality of life. BACKGROUND: In managed care, referrals to a specialist are sometimes kept to a minimum. It has been questioned whether patients with headache do better after consultation with a specialist. METHODS: We mailed a questionnaire to all patients referred for headache to a neurologic center in northern Norway during a 2-year period (n = 1403). The questionnaire included items concerning diagnosis and treatment, along with simple visual analog scales to assess whether the patient's headache syndrome and self-perceived quality of life had changed after seeing the specialist. RESULTS: There

were 1052 responders (75%). Headache generally decreased after consultation with a specialist; it decreased significantly more in the 527 patients who were assigned a diagnosis compared to the 344 patients who claimed they were not. Reduction of headache also was significantly more obvious in the 483 patients who had treatment prescribed, as compared to the 385 patients not receiving any therapeutic measure. Self-perceived quality of life was generally improved, significantly more when the patient was given a diagnosis, and even when the diagnosis did not lead to treatment. CONCLUSIONS: Patients referred to a neurologic center for evaluation of headache generally experience a significantly greater improvement in their headache syndrome and quality of life. This appears particularly so when they receive a diagnosis, even if no treatment is prescribed.

Scherder, E. J., et al. "Pain assessment in patients with possible vascular dementia." *Psychiatry.* 66, no. 2(2003): 133-45 UI 12868293.

PREVIOUS studies comparing Alzheimer's disease (AD) patients with the normal elderly suggest that AD patients experience less pain. In the present study, pain reporting in 20 patients with possible vascular dementia (VaD) was compared to 20 nondemented elderly who had comparable pain conditions. It was hypothesized that, due to de-afferentiation, the possible VaD patients would experience more pain than the cognitively intact elderly. Pain assessment was conducted using three visual analogue scales, (1) the Coloured Analogue Scale (CAS) for Pain Intensity, (2) the CAS for Pain Affect, and (3) the Faces Pain Scale (FPS); a verbal pain questionnaire, Number of Words Chosen--Affective (NWC-A) of the McGill Pain Questionnaire; and an observation scale, the Checklist of Nonverbal Pain Indicators (CNPI). Results showed a significant increase in the scores on the CAS for Pain Affect and the FPS in the demented patients compared to the control group. There was a tendency for an increase in scores on the CNPI in the VaD group. These results suggest that patients with possible VaD suffer more pain than healthy elderly without cognitive impairment.

Schilling, M. L. "Pain management in older adults." *Current Psychiatry Reports.* 5, no. 1(2003): 55-61 UI 12686003.

Pain is a common complaint of older adults. Persistent pain has a significant negative impact on elderly individuals' sense of well being, physical function, and quality of life. Increasing age and cognitive impairment are risk factors for undertreatment of persistent pain. Safe and effective therapy is available for pain syndromes that commonly affect older adults. Recognition of failure of health providers to appropriately assess and manage persistent pain has led to the recent development and adoption of regulatory guidelines for the implementation of effective pain management programs. [References: 64]

Schmulewitz, N., and R. Hawes. "EUS-guided celiac plexus neurolysis--technique and indication." *Endoscopy.* 35, no. 8(2003): S49-53 UI 12929055.

Schnitzer, T. "The new analgesic combination tramadol/acetaminophen." *European Journal of Anaesthesiology.* 20, no. Suppl 28(2003): 13-7 UI 12785457.

BACKGROUND: Combinations of analgesic drugs provide the opportunity for better efficacy with less overall morbidity than provided by single analgesic agents. This article discusses the rationale, efficacy and safety for a novel analgesic combination: tramadol and acetaminophen (paracetamol). METHODS: Data supporting the rationale of combining tramadol and acetaminophen to provide pain relief will be reviewed in addition to clinical data demonstrating the efficacy and safety of this combination in acute and chronic pain states. RESULTS: Tramadol and acetaminophen are a rational combination product in that their mechanisms of action do not overlap and that in preclinical studies this combination acts synergistically.

Also, this combination would be expected to provide more rapid pain relief than tramadol alone, and more persistent pain relief than acetaminophen alone. Moreover, each compound is broken down along separate metabolic pathways. Acute dental pain studies showed that pain relief and improvements in pain intensity associated with tramadol 75 mg plus acetaminophen 650 mg are superior to placebo, or tramadol or acetaminophen alone. This combination provided a rapid onset of action, identical to that achieved with acetaminophen alone, but the pain relief was also sustained, as for tramadol alone. Tramadol/acetaminophen also had the same adverse event profile as tramadol monotherapy. A chronic low back/osteoarthritic pain study showed that the drug combination can also be used similarly to codeine/acetaminophen combinations in treating benign chronic pain. The safety profile of the tramadol/ acetaminophen combination is at least as favourable as that of codeine/acetaminophen, and is well tolerated with long-term use. CONCLUSIONS: Tramadol/acetaminophen combination is a new preparation that is effective in acute or chronic moderate-to-moderately severe pain. It benefits from the complementary actions of the constituent analgesics, having the rapid onset of acetaminophen and the sustained effect of tramadol. The analgesic efficacy of this combination is comparable to that of positive controls, and its adverse event profile is in line with that of its single components. [References: 12]

Schreiber, S., et al. "The influence of electroconvulsive therapy on pain threshold and pain tolerance in major depression patients before, during and after treatment." *European Journal of Pain: Ejp.* 7, no. 5(2003): 419-24 UI 12935793.

Despite the findings that pain and depression are not always directly linked, enough evidence suggest that a complex relationship between pain and depression exists. Using an electronic pressure algometer placed on the sternum, the changes in pressure pain threshold (PPThr) and pressure pain tolerance (PPTol) were evaluated in 19 patients affected by refractory major depression without psychotic features, throughout a full course of electroconvulsive therapy (ECT) treatment. Measurements were done before the first treatment, after the 6th treatment and after the last treatment. After the 6th treatment, mean (+/- SD) PPThr increased significantly from 11.48 (+/- 4.81) kg/cm2 at baseline, to 13.7 (+/- 5.59) kg/cm2 (p=0.0076) while PPTol did not change significantly (from 18.46 (+/- 6.75)kg/cm2 to 17.4 (+/- 8.1)kg/cm2). At the end of the treatment course, mean (+/- SD) PPThr did not increase further significantly (15.06 (+/- 5.21)kg/cm2 (p=0.0234)) while PPTol increased significantly to 21.34 (+/- 7.8)kg/cm2 (p=0.0047). ECT's efficacy was measured with the 21-item Hamilton Rating Scale for Depression (21-HAM-D). Mean (+/- SD) 21-HAM-D scores decreased significantly from 30.9 (+/- 4.15) at baseline, to 10.47 (+/- 5.78) (p=0.0001) after the 6th treatment, with no further significant change at the end of the treatment course (9.94 +/- 3.07; p=0.0254). Both pain threshold and pain tolerance increased following the alleviation of the depressive disorder and a possible usefulness of ECT may be postulated for treating severe, chronic pain syndromes. However, a more significant conclusion is that the increase of the PPThr noted early during ECT treatment may serve as an early outcome possible detector of ECT efficacy in depressed patients.

Schroeder, W. S., and P. J. Gandhi. "Emergency management of hemorrhagic complications in the era of glycoprotein IIb/IIIa receptor antagonists, clopidogrel, low molecular weight heparin, and third-generation fibrinolytic agents." *Current Cardiology Reports.* 5, no. 4(2003): 310-7 UI 12801451.

Antithrombotic, antiplatelet, and fibrinolytic agents are the mainstay for the management of patients with acute coronary syndromes (ACS). In addition to their well-documented efficacy, these pharmacologic agents have the potential for the untoward effect of bleeding. Recent data suggest medication errors related to the dose, duration, and concomitant use of these agents contribute to increasing the risk

of hemorrhage in patients treated for ACS. In the event of a major hemorrhage, clinicians should be aware of strategies used to reverse the pharmacologic effects of the offending agent. This paper critically assesses literature directed toward reversal of agents based on drug-specific pharmacodynamic and pharmacokinetic parameters. [References: 36]

Scott, H. "More needs to be done about assessing and managing pain." *British Journal of Nursing.* 12, no. 19(2003): 1116 UI 14593256.

Seifeldin, R., and P. Grossman. "Fentanyl transdermal system and oxycodone hydrochloride.[comment]." *Journal of Managed Care Pharmacy.* 9, no. 5(2003): 457; authors' reply 458-9 UI 14613448.

Silberstein, S. D., and K. R. Aoki. "Botulinum toxin type A: myths, facts, and current research." *Headache.* 43, no. Suppl 1(2003): S1 UI 12887387.

Sindwani, R., and E. D. Wright. "Role of endoscopic septoplasty in the treatment of atypical facial pain." *Journal of Otolaryngology.* 32, no. 2(2003): 77-80 UI 12866590.

BACKGROUND: An endoscopically performed septoplasty enables correction of deformities under superior visualization with limited tissue trauma and offers marked teaching advantages. OBJECTIVE: To investigate the role of endoscopic septoplasty in the treatment of atypical facial pain caused by septal contact points. In addition to describing the technique, we also intended to outline favourable selection criteria for patients who may benefit from this procedure. METHOD: Thirteen patients with unilateral facial pain and septal contact points with lateral nasal wall structures who met our inclusion criteria were selected for endoscopic septoplasty. RESULTS: The follow-up period ranged from 7 to 20 months postoperatively. There were no intraoperative or postoperative complications. Seven of 13 (54%) patients were "completely cured" of their facial pain and another 5 patients (38.5%) were "significantly improved." Only one patient did not improve following surgery. CONCLUSIONS: Endoscopic septoplasty is a useful approach for dealing with some septal abnormalities and can be very effective in the treatment of atypical facial pain in the appropriately selected patient.

Slatkin, N. E., and M. Rhiner. "Topical ketamine in the treatment of mucositis pain." *Pain Medicine.* 4, no. 3(2003): 298-303 UI 12974832.

Ketamine oral rinse provided effective palliation of intractable mucositis pain in a 32-year-old woman with squamous carcinoma of the tongue undergoing radiation therapy. Pain at rest and with eating decreased with ketamine, allowing for a tapering of her opiate dose. No side effects of ketamine were reported. Treatment benefits most likely arose from the inhibition by ketamine of peripheral N-methyl D-aspartate receptors, though other mechanisms of action may have been contributory. Further evaluation of topical ketamine in the treatment of mucositis-related pain, and, potentially, other causes of inflammatory oral pain, are warranted.

Sloan, P. A., and A. Kancharla. "Treatment of neuropathic orbital pain with gabapentin." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 89-94 UI 14649392.

We report and discuss a case of severe neuropathic orbital pain refractory to standard analgesics that responded well to treatment with the anticonvulsant gabapentin. Gabapentin may be a useful adjuvant analgesic in the treatment of neuropathic pain.

Sluka, K. A., and D. Walsh. "Transcutaneous electrical nerve stimulation: basic science mechanisms and clinical effectiveness." *Journal of Pain.* 4, no. 3(2003): 109-21 UI 14622708.

Transcutaneous electrical nerve stimulation (TENS) is used clinically by a variety of health care professionals for the reduction of pain. Clinical effectiveness of TENS is controversial, with some studies supporting whereas others refute its clinical use. Although used by health professionals for decades, the mechanisms by which TENS produces analgesia or reduces pain are only recently being elucidated. This article describes the basic science mechanisms behind different frequencies of TENS stimulation. Specifically, we describe the literature that supports the use of different frequencies and intensities of TENS. We further describe theories that support the use of TENS such as the gate control theory and the release of endogenous opioids. The literature that supports or refutes each of these theories is described. We also review the clinical literature on TENS effectiveness and elucidate the problems with clinical research studies to date. In conclusion, TENS is a noninvasive modality that is easy to apply with relatively few contraindications. However, the clinical efficacy of TENS will remain equivocal until the publication of sufficient numbers of high quality, randomized, controlled clinical trials. [References: 98]

Smetzer, J. L., and M. R. Cohen. "Pain scales don't weigh every risk." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 67-70 UI 14640344.

The risk of patients receiving opioids without adequate monitoring and resulting in adverse outcomes has been noted by the Institute for Safe Medication Practices. More aggressive opioid analgesia often is clinically indicated, but it is not without risk. Adverse drug events due to opioids have increased with the recent adoption of pain management standards by the Joint Commission on Accreditation of Healthcare Organizations. The implications of this are discussed and a specific safe practice recommendation is provided.

Sobue, K., et al. "Skin analgesia with lidocaine tape prior to epidural blockade." *Canadian Journal of Anaesthesia.* 50, no. 1(2003): 95-6 UI 12514162.

Sommer, C. "Painful neuropathies." *Current Opinion in Neurology.* 16, no. 5(2003): 623-8 UI 14501847.

PURPOSE OF REVIEW: To summarize the current understanding of clinical assessment, pathophysiology, and treatment of pain in neuropathies, focusing on selected entities in which the understanding of the mechanisms underlying pain has advanced recently. RECENT FINDINGS: Ongoing studies are classifying the symptoms and signs of painful neuropathies, assuming that this approach may indicate particular pathomechanisms leading to more rational treatment. Nerve injury induces a large number of cellular changes, the relevance of which for the occurrence of pain is still under investigation. In models of diabetic neuropathy, an altered distribution of sodium channels, hyperexcitability of neurons, and changes in spinal connectivity seem to underlie the development of pain. The role of inflammatory mediators has been explored in inflammatory and degenerative neuropathies. Second messenger pathways contributing to hyperalgesia in various neuropathies have been identified, opening up new treatment options. A number of newer and older drugs have been studied for their use in painful neuropathies in clinical trials. Epidemiology has shown that, despite the availability of drugs with moderate efficacy in the treatment of neuropathic pain, a large percentage of patients do not gain access to them. SUMMARY: Advances in the standardization of assessment of patients with painful neuropathies are beginning to have an impact on how clinical studies are designed. Major progress has been made in the understanding of cellular and molecular changes after nerve injury, but their

relevance for the pathophysiology of pain in neuropathies has still to be determined. [References: 85]

Speake, D., S. Teece, and K. Mackway-Jones. "Detecting high-risk patients with chest pain." *Emergency Nurse.* 11, no. 5(2003): 19-21 UI 14533295.

AIM: To assess the ability of nurses using the Manchester Triage System (MTS) to identify those patients with chest pain requiring immediate electrocardiogram (ECG) and physician assessment within ten minutes. METHOD: A four-week prospective cohort of all patients attending with chest pain compared detection of risk by nurses using the MTS to that of researchers using best available evidence-based prognostic indicators from history. RESULTS: The study of 167 patients showed that nurses using MTS had a sensitivity of 86.8 per cent (95 per cent confidence interval (CI), 78.4-92.3 per cent) and a specificity of 72.4 per cent (95 per cent CI, 61.4-81.2 per cent) when identifying high risk cardiac chest pain. CONCLUSION: Nurses using the MTS are a sensitive tool for identifying high risk cardiac chest pain but further work is required to assess whether additional training can improve sensitivity.

Stanczak, J., et al. "Efficacy of epidural injections of Kenalog and Celestone in the treatment of lower back pain." *AJR. American Journal of Roentgenology.* 181, no. 5(2003): 1255-8 UI 14573415.

OBJECTIVE: Epidural corticosteroid injections have been used extensively to treat lower back pain, but the relative effectiveness of one corticosteroid versus another has never been reported in a large patient series. We retrospectively reviewed 597 patients who had epidural corticosteroid injections to determine any difference in Kenalog or Celestone efficacy. MATERIALS AND METHODS: We reviewed charts and self-reported pain score evaluations of 597 patients who received either Kenalog or Celestone Soluspan as an epidural injection for the treatment of lower back pain from 1997 to 2002 at our university hospital and affiliated Veterans Affairs hospital. Kenalog was used for the initial 2 years and Celestone was used for the next 3 years. Fluoroscopic guidance was used to confirm epidural location, and each patient was injected with a mixture of 5 mL of 0.5% preservative-free lidocaine and 2 mL of either Kenalog 40 mg/mL (triamcinolone acetonide injectable suspension) or Celestone Soluspan 6 mg/mL (betamethasone sodium phosphate and betamethasone acetate injectable suspension). Each patient was given a standardized pain evaluation sheet that used an 11-point scale for initial pain severity. Scoring of pain compared with baseline during the following 14 days was based on a 5-point scale of pain improvement or worsening. RESULTS: On days 0-3 after the procedure, no statistical significance in improvement of lower back and buttock pain was seen between groups. On day 7, 59% of Celestone recipients and 73% of Kenalog recipients showed improvement in lower back pain ($p = 0.002$, Pearson's chi-square test), and 58% of Celestone recipients and 75% of Kenalog recipients had improvement in leg or buttock pain ($p < 0.001$). On day 14, 54% of Celestone recipients and 71% of Kenalog recipients showed improvement in lower back pain ($p < 0.001$), and 54% of Celestone recipients and 71% of Kenalog recipients had improvement in leg or buttock pain ($p < 0.001$). CONCLUSION: The epidural injection of Celestone Soluspan and Kenalog reduced lower back and radicular pain in more than half the patients, although Kenalog reduced pain in a significantly larger number of patients than Celestone Soluspan at 1 and 2 weeks after injection.

Stein, K. D., et al. "Validation of a modified Rotterdam Symptom Checklist for use with cancer patients in the United States." *Journal of Pain & Symptom Management.* 26, no. 5(2003): 975-89 UI 14585549.

The Rotterdam Symptom Checklist (RSCL) is a well-known instrument for the assessment of symptom-related distress among cancer patients. Despite its broad

application, the utility of the RSCL with patients of some cancers is hindered by the omission of several important physical symptoms and methodological limitations of previous validation studies. The aims of the present study were to modify the RSCL through the addition of several physical symptoms and to subsequently validate the modified version of the Rotterdam Symptom Checklist (RSCL-M) with a heterogeneous sample of cancer patients from the United States. A total of 1,005 male and female cancer patients from two midwestern states completed the RSCL-M and several other self-report instruments. Results indicated that the RSCL-M is a reliable and valid instrument for use with cancer patients in the United States and is sensitive to differences in physical distress across groups expected to have distinct symptom-related distress profiles.

Svensson, P., K. Wang, and L. Arendt-Nielsen. "Effect of muscle relaxants on experimental jaw-muscle pain and jaw-stretch reflexes: a double-blind and placebo-controlled trial." *European Journal of Pain: Ejp.* 7, no. 5(2003): 449-56 UI 12935797.

A randomised, double-blind, placebo-controlled three-way cross-over study was performed to investigate the effect of two muscle relaxants (tolperisone hydrochloride and pridinol mesilate) on experimental jaw-muscle pain and jaw-stretch reflexes. Fifteen healthy men participated in three randomised sessions separated by at least 1 week. In each session 300 mg tolperisone, 8 mg pridinol mesilate or placebo was administered orally as a single dose. One hour after drug administration 0.3 ml hypertonic saline (5.8%) was injected into the right masseter to produce muscle pain. Subjects continuously rated their perceived pain intensity on an electronic 10-cm visual analogue scale (VAS). The pressure pain threshold (PPT) was measured and short-latency reflex responses were evoked in the pre-contracted (15% maximal voluntary contraction) masseter and temporalis muscles by a standardised stretch device (1 mm displacement, 10 ms ramp time) before (baseline), 1 h after medication (post-drug), during ongoing experimental muscle pain (pain-post-drug), and 15 min after pain had vanished (post-pain). Analysis of variance demonstrated significantly lower VAS peak pain scores (5.9 +/- 0.4 cm) after administration of tolperisone hydrochloride compared with pridinol mesilate (6.8 +/- 0.4 cm) and placebo (6.6 +/- 0.4 cm) (P=0.020). Administration of pridinol mesilate was associated with a significant decrease in PPTs compared with tolperisone hydrochloride and placebo (P=0.002) after medication, but not after experimental jaw-muscle pain. The normalised peak-to-peak amplitude of the stretch reflexes were not significantly influenced by the test medication (P=0.762), but were in all sessions significantly facilitated during ongoing experimental jaw-muscle pain (P=0.034). In conclusion, tolperisone hydrochloride provides a small, albeit significant reduction in the perceived intensity of experimental jaw-muscle pain whereas the present dose had no effect on the short-latency jaw-stretch reflex.

Tay, T. G., T. J. Brake, and A. S. Kwan. "Patient-controlled epidural analgesia: a prospective audit of epidural pethidine 4 mg/ml and ropivacaine 0.2% with fentanyl 2 micrograms/ml." *Anaesthesia & Intensive Care.* 31, no. 4(2003): 412-7 UI 12973966.

A prospective audit of one hundred and forty-seven (147) Acute Pain Service (APS) patients, who received postoperative patient-controlled epidural analgesia (PCEA) using pethidine 4 mg/ml or ropivacaine 0.2% with fentanyl 2 micrograms/ml in general surgical or orthopaedic wards over a twelve-month period, is presented. Data were collected from APS observation charts over a 48-hour period postoperatively. We found no significant difference in postoperative analgesia or side-effects between pethidine and ropivacaine with fentanyl in orthopaedic or general surgical patients.

Teragawa, H., et al. "Myocardial bridging increases the risk of coronary spasm." *Clinical Cardiology.* 26, no. 8(2003): 377-83 UI 12918640.

BACKGROUND: Myocardial bridging (MB) has been associated with cardiac events. Whether coronary spasm is one factor contributing to those events is unknown. HYPOTHESIS: This study investigated whether the likelihood of coronary spasm is increased in patients with MB. METHODS: A spasm-provocation test was performed by infusing acetylcholine into the left coronary artery in 114 Japanese patients with chest pain. The test result was defined as positive when the diameter of the coronary artery was reduced by > or = 50% and ST-segment changes were documented. Myocardial bridging was defined as a > 15% reduction in coronary arterial diameter during systole after intracoronary injection of nitroglycerin. RESULTS: Myocardial bridging was identified in 41 patients (36%) and was located in the mid-segment of the left anterior descending coronary artery (LAD) in all patients. Patients with MB experienced coronary spasm more frequently than patients without MB (MB+: 73%; MB-: 40%, p = 0.0006). Furthermore, among patients with a positive spasm-provocation test, coronary spasm occurred more frequently in the mid-segment of the LAD in patients with MB than in those without MB (MB+: 73%; MB-: 45%, p = 0.0259). Multivariate regression analysis demonstrated that MB was a predictor of coronary spasm (odds ratio: 3.478, p = 0.0088). CONCLUSIONS: These results suggest that MB increases the risk of coronary spasm and that coronary spasm may be the proximate etiology of cardiac events associated with MB.

Tucker, K. L. "A piece of the puzzle: bringing accountability to failure to treat pain adequately.[comment]." *Journal of Palliative Medicine.* 6, no. 4(2003): 615-7 UI 14516503.

Turan, A., et al. "Alternative application site of transdermal nitroglycerin and the reduction of pain on propofol injection." *European Journal of Anaesthesiology.* 20, no. 2(2003): 170-2 UI 12622508.

Usichenko, T. I., O. I. Ivashkivsky, and V. V. Gizhko. "Treatment of rheumatoid arthritis with electromagnetic millimeter waves applied to acupuncture points--a randomized double blind clinical study." *Acupuncture & Electro-Therapeutics Research.* 28, no. 1-2(2003): 11-8 UI 12934956.

The aim of the study was to evaluate the efficacy and safety of electromagnetic millimeter waves (MW) applied to acupuncture points in patients with rheumatoid arthritis (RA). Twelve patients with RA were exposed to MW with power 2.5 mW and band frequency 54-64 GHz. MW were applied to the acupuncture points of the affected joints in a double blind manner. At least 2 and maximum 4 points were consecutively exposed to MW during one session. Total exposure time consisted of 40 minutes. According to the study design, group I received only real millimeter wave therapy (MWT) sessions, group II only sham sessions. Group III was exposed to MW in a random cross-over manner. Pain intensity, joint stiffness and laboratory parameters were recorded before, during and immediately after the treatment. The study was discontinued because of beneficial therapeutic effects of MWT. Patients from group I (n=4) reported significant pain relief and reduced joint stiffness during and after the course of therapy. Patients from group II (n=4) revealed no improvement during the study. Patients from group III reported the changes of pain and joint stiffness only after real MW sessions. After further large-scale clinical investigations MWT may become a non-invasive adjunct in therapy of patients with RA.

Uyanik, J. M. "Evaluation and management of TMDs, Part 2." *Dentistry Today.* 22, no. 11(2003): 108-10, 112, 114-7 UI 14650346.

TMDs are only one of a host of different conditions that are part of the broader category of chronic orofacial pain disorders and dysfunctions. Due to multifactorial etiologies, it is imperative to adopt a multidisciplinary approach when evaluating and treating these patients. Table 1 lists the various conditions to consider in the differential diagnosis of orofacial pain disorders.

Vanhanen, I., et al. "Myocardial uptake and release of substrates in patients operated for unstable angina: impact of glutamate infusion." *Scandinavian Cardiovascular Journal.* 37, no. 2(2003): 113-20 UI 12775312.

OBJECTIVE: To study cardiac uptake and release of substrates and the influence of intravenous glutamate in patients operated for unstable angina requiring intravenous nitrates. DESIGN: Nineteen patients were randomized to blinded infusion of glutamate or saline. Arterial-coronary sinus differences of substrates were measured before cardiopulmonary bypass (CPB) and during early reperfusion. RESULTS: Before CPB the only major substrates that were extracted by the heart in the saline group were free fatty acids (FFAs). During reperfusion uptake of glucose and glutamate was found but FFAs remained the major substrate extracted by the heart. Initially transient low oxygen extraction and lactate release were found. Conversion to lactate uptake was not observed. Glutamate infusion was associated with an uptake of glutamate and in contrast to the control group there was also uptake of lactate before CPB and at the end of the study period. CONCLUSION: The metabolic situation before CPB with a reliance on myocardial FFA uptake is less than ideal with regard to ischemia. Early reperfusion was characterized by dynamic changes and a shift towards myocardial glucose uptake but FFAs remained the major substrate extracted. The qualitative findings associated with glutamate infusion agree with previous animal and human studies but have to be interpreted cautiously due to lack of flow measurements

Vicente, K. J., et al. "Programming errors contribute to death from patient-controlled analgesia: case report and estimate of probability.[see comment]." *Canadian Journal of Anaesthesia.* 50, no. 4(2003): 328-32 UI 12670807.

PURPOSE: To identify the factors that threaten patient safety when using patient-controlled analgesia (PCA) and to obtain an evidence-based estimate of the probability of death from user programming errors associated with PCA. CLINICAL FEATURES: A 19-yr-old woman underwent Cesarean section and delivered a healthy infant. Postoperatively, morphine sulfate (2 mg bolus, lockout interval of six minutes, four-hour limit of 30 mg) was ordered, to be delivered by an Abbott Lifecare 4100 Plus II Infusion Pump. A drug cassette containing 1 mg.mL(-1) solution of morphine was unavailable, so the nurse used a cassette that contained a more concentrated solution (5 mg.mL(-1)). 7.5 hr after the PCA was started, the patient was pronounced dead. Blood samples were obtained and autopsy showed a toxic concentration of morphine. The available evidence is consistent with a concentration programming error where morphine 1 mg.mL(-1) was entered instead of 5 mg.mL(-1). Based on a search of such incidents in the Food and Drug Administration MDR database and other sources and on a denominator of 22,000,000 provided by the device manufacturer, mortality from user programming errors with this device was estimated to be a low likelihood event (ranging from 1 in 33,000 to 1 in 338,800), but relatively numerous in absolute terms (ranging from 65-667 deaths). CONCLUSION: Anesthesiologists, nurses, human factors engineers, and device manufacturers can work together to enhance the safety of PCA pumps by redesigning user interfaces, drug cassettes, and hospital operating procedures to minimize programming errors and to enhance their detection before patients are harmed.

Villevieille, T., et al. "Efficacy of epidural analgesia during labour and delivery: a comparison between singleton vertex presentation, singleton breech presentation and twin pregnancies." *European Journal of Anaesthesiology.* 20, no. 2(2003): 164-5 UI 12622504.

Visina, C. E., et al. "Community hospital physician and nurse attitudes about pain management." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 51-62 UI 14649388.

An interdisciplinary committee was established and charged with examining pain management and developing interventions at a 148 bed community hospital. To examine strategies on managing pain from both healthcare provider and patient perspectives, the committee surveyed the attitudes of physicians and nurses toward pain management and patients' opinions about the pain management they received in the hospital. A separate survey instrument was developed for physicians, nursing staff and patients. Physicians and nursing staff from all departments were asked to complete the survey during departmental meetings in Autumn 2000, and all patients for whom pain medication were ordered during the month of May 2000 were asked to participate. A total of 45 physicians, 142 nurses and 169 patients responded. Results showed that the majority of physicians (88.9%, n = 40) and nurses (83.0%, n = 118) were satisfied with the pain management outcomes in their patients, and that 91.1% of physicians and 90.2% of nurses included their patients in the pain management decision-making process. Nearly all patients believed their pain was adequately managed, but the results indicated a need to improve the use of pain assessment scales by the hospital staff and a need to educate and involve all patients in their pain management options. Survey data also showed a desire for staff education on pain management.

Wagenlehner, F. M., and K. G. Naber. "Prostatitis: the role of antibiotic treatment." *World Journal of Urology.* 21, no. 2(2003): 105-8 UI 12687400.

The prostatitis syndrome is commonly found in urologic practice and is classified according to the NIDDK/NIH, in which bacterial prostatitis (acute and chronic) is distinguished from chronic pelvic pain syndrome (CPPS). In acute bacterial prostatitis (NIH category I), antibiotic treatment is mandatory and successful in most cases. In chronic bacterial prostatitis (NIH category II), antibiotics must be selected according to suitable pharmacokinetic/pharmacodynamic parameters and therapy should be prolonged. The success varies according to the etiologic pathogen and the course of the infection. In inflammatory CPPS (NIH category IIIA) antibiotics can be tried initially and continued, if symptoms improve. There is no consensus regarding the role of antibiotic treatment in patients with non-inflammatory CPPS (NIH category IIIB) and asymptomatic prostatitis (NIH category IV). [References: 34]

Weschules, D. J., et al. "Methadone and the hospice patient: prescribing trends in the home-care setting." *Pain Medicine.* 4, no. 3(2003): 269-76 UI 12974826.

OBJECTIVE: To identify frequency and utilization patterns of methadone by hospice patients in the home-care setting. PATIENTS AND SETTING: All hospice patients admitted to a North American palliative care specialty pharmacy and dispensed methadone from November 1, 2001 to October 31, 2002 were analyzed. We also analyzed all hospice patients dispensed long-acting opioids during that same time period. DESIGN: A retrospective analysis of the pharmacy database was performed for patients dispensed methadone. Data was compared to the long acting opioid cohort to be able to identify any difference in terminal diagnoses present, and the presence of neuropathic pain in both groups. Methadone daily dosage was also analyzed during this study. RESULTS: Four hundred sixteen hospice patients were dispensed methadone over a twelve-month period of time. For comparison, 21,219 patients were prescribed a long-acting opioid preparation (sustained-release

morphine, sustained-release oxycodone, or transdermal fentanyl). The most common terminal diagnosis for both groups was lung carcinoma. The distribution of terminal diagnoses was similar in both groups. The group prescribed methadone was found to have a higher incidence of neuropathic pain (30.5% of patients) when compared to the long-acting opioid group (16.9%). Most patients (61.3%) were prescribed daily methadone doses of 100 mg or less. CONCLUSIONS: Despite its potential clinical and economic benefits, methadone is not commonly prescribed for the hospice patient in the home-care setting. Clinicians may be more aware of the usefulness of methadone in the treatment of neuropathic pain.

Wiffen, P. J. "Pain and palliative care in The Cochrane Library: Issue Number 3 for 2002." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 1(2003): 63-6 UI 14640343.

The Cochrane Library of systematic reviews is published quarterly. Six of the 62 new reviews published in Issue 4 for 2001 in February 2002 are relevant to pain and palliative care. Annotated bibliographies for those nine reviews are provided.

Wiffen, P. J. "Pain and palliative care in the Cochrane Library: Issue Number 4 for 2002." *Journal of Pain & Palliative Care Pharmacotherapy.* 17, no. 2(2003): 95-8 UI 14649393.

The Cochrane Library of systematic reviews is published quarterly. Issue 4 for 2002 contains 2655 reviews of which 1519 are completed and in full text. Nine of those are directly relevant to pain management and palliative care. Annotated bibliographies for those nine reviews are provided.

Wu, N., et al. "The problem of assessment bias when measuring the hospice effect on nursing home residents' pain." *Journal of Pain & Symptom Management.* 26, no. 5(2003): 998-1009 UI 14585551.

This study examined the observed differential documentation of pain on nursing home (NH) resident assessments (minimum data sets [MDS]) when dying residents were and were not enrolled in hospice. We studied 9,613 NH residents who died in 6 states in 1999 and 2000. Documented pain was compared among three groups of residents who were categorized by their hospice exposure. At the time of their last MDS completion, residents in hospice were more likely to receive opioids for their moderate to severe pain than were non-hospice residents and residents enrolled in hospice after the last MDS assessments. However, hospice residents were twice as likely as non-hospice residents and 1.3 times as likely as residents who eventually enrolled in hospice to have pain documented. These counterintuitive findings suggest that there is differential documentation of pain on the MDS when hospice is involved in care, perhaps because of superior pain assessment by hospice.

Yasan, H., and H. Dogru. "Effect of infraorbital nerve block under general anesthesia on consumption of isoflurane and postoperative pain in endoscopic endonasal maxillary sinus surgery by Higashizawa and Koga.[comment]." *Journal of Anesthesia.* 17, no. 1(2003): 68; author reply 69 UI 12908694.

Yegin, A., et al. "Early postoperative pain management after thoracic surgery; pre- and postoperative versus postoperative epidural analgesia: a randomised study." *European Journal of Cardio-Thoracic Surgery.* 24, no. 3(2003): 420-4 UI 12965314.

OBJECTIVES: Effective analgesia and blockade of the perioperative stress response may improve outcome and epidural analgesia plays a role in the reduction of pulmonary complications following thoracic surgery. In this study, we assessed preoperative and postoperative thoracic epidural analgesia (Preop-TEA and Postop-TEA) techniques on post-thoracotomy pain in 61 patients undergoing posterolateral

thoracotomy. METHODS: A thoracic epidural catheter was inserted into all the patients before surgery. In Group I, 8 mL of 0.25% bupivacaine plus fentanyl 50 microg in 2 mL was administered preoperatively. In Group II, no medication was administered via the epidural catheter preoperatively and intraoperatively. Postoperative analgesia was maintained with patient-controlled epidural analgesia with bupivacaine and fentanyl solution in both groups. Pain was evaluated at 2, 4, 8, 12, 24 and 48 h at rest and coughing. RESULTS: Preop-TEA Group was associated with decreased pain compared with the Postop-TEA Group. CONCLUSIONS: In conclusion, preoperative epidural analgesia is an appropriate method for post-thoracotomy pain and is more effective in preventing acute postoperative pain.

Yu, F., et al. "Use of a Markov transition model to analyse longitudinal low-back pain data." *Statistical Methods in Medical Research.* 12, no. 4(2003): 321-31 UI 12939099.

In a randomized clinical trial to assess the effectiveness of different strategies for treating low-back pain in a managed-care setting, 681 adult patients presenting with low-back pain were randomized to four treatment groups: medical care with and without physical therapy; and chiropractic care with and without physical modalities. Follow-up information was obtained by questionnaires at two and six weeks, six, 12 and 18 months and by a telephone interview at four weeks. One outcome measurement at each follow-up is the patient's self-report on the perception of low-back pain improvement from the previous survey, recorded as 'A lot better,' 'A little better,' 'About the same' and 'Worse.' Since the patient's perception of improvement may be influenced by past experience, the outcome is analysed using a transition (first-order Markov) model. Although one could collapse categories to the point that logistic regression analysis with repeated measurements could be used, here we allow for multiple categories by relating transition probabilities to covariates and previous outcomes through a polytomous logistic regression model with Markov structure. This approach allows us to assess not only the effects of treatment assignment and baseline characteristics but also the effects of past outcomes in analysing longitudinal categorical data.